Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone and Sound Waves

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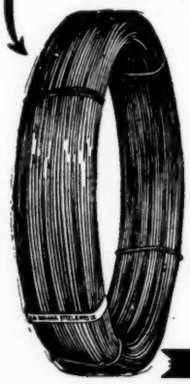

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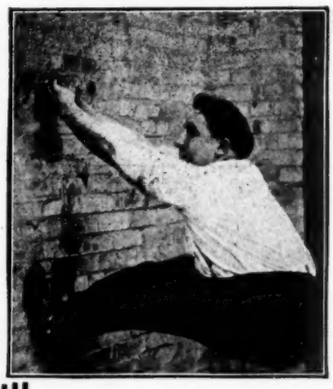

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Lack of appreciation is the incubator which has hatched thousands of employes into employers. Injustice has driven into independence half the successful men in America.—Herbert Kaufman.

The Chicago Telephone Rate Investigation.

The report of Prof. Edward W. Bemis on his investigation of the Chicago Telephone Co., upon which he has been working many months, has been completed and presented to the Chicago city council committee on gas, oil and electric light. Prof. Bemis has made a most exhaustive investigation of the telephone company, its revenues, expenditures and accounting methods. As this is one of the very few studies made for the purpose of fixing telephone rates in this country, it is of special interest to telephone men.

According to statistics, New York is the only city in the world which has more telephones than Chicago. The magnitude of the interests at stake made the Chicago investigation difficult, and in his work Prof. Bemis has been aided in every possible way by the Chicago Telephone Co. The company has pursued an extremely open policy in respect to its books and methods, which has greatly facilitated the studies.

The investigation was brought about through a city ordinance passed in November, 1907, giving a franchise to the Chicago Telephone Co. until January 8, 1929. This franchise provided that the portion of the company's business within the city limits should be under complete control of the city council in the matter of rates for periods of five years each after the expiration of the first 30 months. The rates for the first two and one-half years were prescribed in the ordinance of 1907, and since then no new rates have been ordered by the city council for the five years which began in April, 1910.

Since the beginning of 1910 three investigations of the telephone company have been made by experts employed by the city council. The second report by W. J. Hagenah recommended a total reduction of about $200,000 in rates. This reduction was said by the officials of the telephone company to be erroneous and that if adopted would give the telephone company rates which would be unreasonable and which it could not accept. The council, however, instructed Mr. Hagenah to proceed with the preparation of a schedule of rates based on the analysis contained in his report. This schedule was never prepared, and later Prof. Bemis was engaged to make another investigation.

The report of Prof. Bemis, which has just been made public, holds that the company can reduce its revenue some $700,000 per annum and still pay a reasonable return on the investment. The figures given in the report place the value of the telephone plant at about $25,500,000, while the value given in the Hagenah report was about $19,000,000. The former figure is much less than the value given in an appraisal made by experts engaged by the telephone company.

Operating expenses are found to be high, due in part to high wages, repairs, removals, the large number of nickel telephones, extent of flat-rate service, and other items considered justifiable, but criticism is made of payments to the American Telephone & Telegraph Co.

On another page a summary is given of the principal points brought out in the report. As this report contains so much which is of interest, extended abstracts of the most interesting parts will be published in a future issue of TELEPHONY.

Uncle Sam on Election Day.

Next Tuesday the American voters will walk to the polls to select the man who will be the head of the nation for four years after next March. Some considerable number of them are sure to be disappointed when the votes are counted. It may be those who wanted the present administration continued, or it may be those who desired a change. Everybody cannot be equally pleased. Somebody must be acclaimed a loser when the cold gray dawn breaks on November 6. Only one can be

Fortunately, after all, there is a widespread feeling that the real prosperity of the country will not be injuriously affected, no matter who is elected next Tuesday. All sides agree that never before have general business conditions been so little disturbed by a political campaign as this year, and that, too, by a campaign that has been full of apparently alarming possibilities. With three powerful factions of citizenship hurling broadsides at one another and trying their best to frighten the country, Uncle Sam has calmly gone ahead, harvested an enormous crop of agricultural products, planned for a big business year in 1913, and good naturedly told the politicians to "run along and play and not bother."

Ours is a big country, and the indication that politics cannot rock its commercial foundation, is a sign that it is growing bigger all the time. Maybe when the party leaders realize that more fully, they will get in the ranks and co-operate to perpetuate good times instead of endangering national prosperity in order to gain a temporary political advantage.

Don't Mumble Your Words.

In one of the most popular plays of the past few years, there appeared a character who spoke very indistinctly. He was continually reminded of it by admonitions of, "Don't mumble your words!" This injunction may well be applied to many users of the telephone. To enunciate clearly and distinctly in general conversation is important and in telephone work it is not only important but absolutely essential. It does not matter how perfect a person's English may be, for its value is entirely lost if the enunciation is not clear and pleasing.

There is nothing which attracts business to a house under present conditions, better than a bright cheery voice over the telephone. A dull droning answer, too, is much worse than a slovenly heedless clerk behind the counter. The business man who employs such a clerk is seldom found but many may be found who employ just such a person to handle the telephone calls. Cases have been known where a "How dare you try to telephone us?" voice has meant the loss of a great amount of business. On the other hand, a person with a clear enunciation and a tone that is optimistic, wide-awake and cheerful, is a valuable asset to any business.

Recently a firm employed a new man in its office. He was called upon to transact considerable business with a neighboring concern over the telephone. A few days after his arrival one of the officers of the company met one from the other concern and was immediately asked about the new man. Upon inquiring the reason for this special interest, he was told: "His voice is as clear as a bell over the telephone and every word he utters can be understood perfectly." The person who made this comment talks daily with many people over the telephone, both local and long distance, but this one man's voice was the only one which was particularly noticeable to him, his interest being directed to it by the clear, pleasant enunciation.

Consider what this means. How few people talk distinctly, that it, have a clear and pleasing enunciation. Many mumble their words, talk hurriedly and indistinctly, especially in passing a call to an operator. If the operator handles the call in the same way, repeating the number in a fast, sharp voice, wrong connections are apt to be frequent, causing general dissatisfaction with the service among the subscribers. When the operator repeats the number in a slow, distinct, questioning tone, the subscriber has an opportunity to correct the number if there is need of it. Not only will the number of connections due to wrong numbers be reduced but a source of many complaints from subscribers regarding impolite operators, will be eliminated.

Indistinct enunciation is a habit which, once formed, is like all other bad habits; extremely difficult to overcome. In the correction of poor enunciation, the value of association is recognized as an important factor. It is well known that persons closely associated unconsciously adopt each other's methods. So in the matter of enunciation, if a person who enunciates indistinctly is associated, actually or telephonically, with people who enunciate clearly and pleasantly, he will unconsciously imitate them.

Those in charge of the training of operators in the large cities pay a great deal of attention to training operators to enunciate slowly and pleasantly. The matter of clear enunciation is of great importance in telephone work and all employes of telephone companies should set a good example to the users. In other words, no telephone man or woman should need the injunction "Don't mumble your words!"

Importance of Peg Counts.

Peg counts are now quite commonly considered a part of the regular routine of telephone exchanges. Not all telephone employes realize the importance of these peg counts nor all the information which may be obtained from an analysis of them. Many employes consider peg counts unnecessary and an additional burden upon the operating force. Operators sometimes have the idea that their work and that of the office is judged by the number of calls which are tallied during these counts, and endeavor to over-tally rather than under-tally the calls, thus making the count inaccurate.

By means of peg counts the traffic due to the various classes of service furnished by a company is found. They provide records which are of value as a basis in determining the proper distribution of the load among the operators and for the arrangement of the operating schedule. Each call should be registered as it is handled and not after several calls have been passed. The chief operator can check the loads of the operators from these counts and when any position shows an abnormal record, it is an indication that the operator is overloaded or has been making an improper count.

When additional equipment or a new switchboard is to be provided, the peg count furnishes important data for consideration in engineering the new plant. The installation of a new switchboard usually means an outlaying of several thousands of dollars, so that the traffic information, which is used in determining the size and type of the board should be accurate.

Report on Chicago Rates Proposes Cut of $700,000

Edward W. Bemis Completes Investigation of Chicago Telephone Co. for City Council Committee Which Will Take up the Work of Readjusting Rates—Reduction Will Leave Company Fair Profit—Dividends Held too Large—Payments to A. T. & T. Co. Criticised

The report of Prof. Edward W. Bemis on the investigation of the Chicago Telephone Co., which the Chicago city council committee on gas, oil and electric light will use as a basis for determining Chicago telephone rates, was submitted to the committee October 30. According to the report some $700,000 can be cut from the charges of the company against its patrons, without reducing the profits below a reasonable figure. No recommendation is made as to the method of dividing this surplus income. The establishment of a properly equipped city telephone bureau for receiving and investigating all complaints is recommended. Measured service for residences that would not require the use of coins or slugs is also favored.

The city council committee on gas, oil and electric light will now take up the problem of determining to which classes of service the reductions should be applied. The company's ordinance, granted in 1907, gives the council the right to readjust rates every five years. It is expected that the telephone company will make a strong fight against any reduction of rates.

Mr. Bemis holds that the 8 per cent. dividends which the company now pays on its $27,000,000 capital stock, are excessive and points out that if telephone rates are lowered by $700,000, a reduction in the company's dividend to 7 per cent. or 6.5 per cent. would probably follow. Practically all the stock is owned by the American Telephone & Telegraph Co.

"Disguised dividends" is the term used to tell where the money now goes that could be saved patrons of the company, as mentioned above, and still pay investors a fair profit.

A. T. & T. Royalties Unreasonable.

Of the $700,000 reduction recommended by Professor Bemis, about $200,000 represents what he considers unreasonable royalties paid to the American Telephone & Telegraph Co. by its Chicago subsidiary, chiefly for the use of patented apparatus. These royalties amount to 4.5 per cent. of the company's gross receipts.

The amount which the Chicago company pays the American Telephone & Telegraph Co. for use of patented equipment and other benefits averages $1.76 for each of the 335,652 telephones in service. Prof. Bemis holds that $1 is sufficient payment.

On the valuation of the company's plant Professor Bemis differs radically from Bion J. Arnold and H. M. Byllesby, engineering experts employed by the company to make an appraisal. They appraised the reproduction value of the company's property inside the city at $39,644,523, as of August 1, 1911, and the total value in the city and suburbs at $52,740,338. Mr. Bemis lopped millions off these figures, estimating the value of the plant inside the city at $25,495,036 and in both city and suburbs at $32,813,246.

Nearly $8,000,000 which was included in the estimate as so-called cost of developing the business and plant development expense was excluded by Prof. Bemis because it represented "expenses not actually incurred or paid for out of operating expenses." Where 20 per cent. was allowed in the appraisal for overhead expenses, only 15 per cent. is conceded in the report. Also the cost of paving over conduits, laid at the city's expense which they had included, was deducted by the city expert.

In a summary of his report Prof. Bemis says:

"Even with these reductions, the appraisal shows a value now in the city and suburbs of $32,813,000, and in the city alone of about $25,495,000, as of August 1, 1911. Since the company had outstanding at that time $27,000,000 of stock and $6,000,000 of bonds and loans, the present physical value of the plant is at least equal to the securities, and shows that the $5,000,000 that went into the depreciation reserve was approximately a correct amount."

Suggests a Fixed Rental.

Though making no recommendations as to specific changes in rates, Mr. Bemis suggests that many nickel telephone users might be better satisfied with an arrangement whereby a fixed rental per month would be guaranteed and all calls in excess of a certain number should be paid for at the end of the month at the rate of five cents a call or less, thus doing away with the use of coins or slugs.

In making up the reduction of $700,000, Prof. Bemis says the company can do it in several ways.

Methods of Making Up the $700,000.

In 1911 about $975,000 was placed in the depreciation reserve for the city exchange and this may be cut to $500,000 until repairs and station removals, now amounting to about 7.5 per cent. of the plant investment, shall decline further, as they are quite likely to do. With the $500,000 as a reserve, the actual repairs and removals of 1911 would bring the total maintenance and depreciation expense only to 9 per cent. This item is considerably higher than the average for the Bell companies either as a whole or in the larger cities.

Assuming the reserve fund cut $475,000 the remaining $225,000 may be secured by reducing the dividend rate of the company as a whole from 8 per cent. to 7.1 per cent., or on the city portion to 6¾ per cent. As the A. T. & T. Co., which owns over 95 per cent. of the stock, collects in rentals within the city nearly $200,000 more than the service appears to cost, or about 1 per cent. on the stock, a reduction in the dividend rate to 6½ or 7 per cent. does not appear unreasonable.

Allowing 9½ per cent. for maintenance and depreciation would make a reduction of about $350,000 in the additions to the reserve fund, on the basis of the amount set aside in 1911. A reduction of the dividend on the city part of the stock to 6¼ per cent., would provide the remaining $350,000 of the $700,000. Even with this reduction, as the A. T. & T. Co. would continue to receive the excess rental, the dividend which it virtually would receive, would amount to 7 per cent.

In place of the dividend reduction the rental could be reduced. This rental is about 1¾ per cent. on all the property and about 2¼ per cent. on the stock, or about $1.75 per telephone. In 1911 some $445,500 was paid to the A. T. & T. Co. for rentals and this year in the neighborhood of $475,000 will be paid. Apparently $200,000 could be deducted from this amount and still leave the A. T. & T. Co. a reasonable return.

Another method of handling the matter would be a smaller dividend reduction and the utilization of the 1 per cent. profit obtained from loaning the Central Union Telephone Co. at 6 per cent., the proceeds from the sale of over $10,000,000 of the recent $14,000,000, 5 per cent. bond issue of the Chicago Telephone Co.

Regarding the claims of the telephone company for spe-

cial allowance for extraordinary depreciation, Prof. Bemis says:

"The company claims large expenses during the next five years on account of the building of the subways by the city; but it is unlikely that enough will be done in this direction during the next five years to affect the ability of the company to make this reduction in rates.

Other proposed changes, like the removal or scrapping of certain central exchanges and the displacement of manual for semi-mechanical switchboards are either uncertain or the cost would be comparatively little, or the result would be economies in operation sufficient to pay for the cost in a few years."

Prof. Bemis believes that a reduction of $700,000 in the rates will stimulate the company's growth and leave enough for maintenance and depreciation reserves to meet the needs of the next five years in addition to taking care of extraordinary needs such as may develop from change of central exchanges, displacement of switchboards or subway construction. It will also leave a fair return to the owners of the property.

Lincoln Company Progressing Toward Unification of Systems

Nebraska Organization, Which Took Over All Bell Properties in Big Territory South of Platte River, Now Comprises 87 Exchanges, Serving 42,000 Telephones, Over 10,000 Miles of Pole Lines, and 82 Miles of Underground Conduit—Description of Modern Exchange—New Building at Lincoln

By John D. Holland

Since perfecting, last February, its agreement with the Bell telephone interests in Nebraska for a division of territory in portions of that state, the Lincoln Telephone & Telegraph Co. has been making rapid strides toward the unification of service in that part of the field reserved for its operations, lying south of the Platte River, and east of the west lines of Adams and Webster counties.

Within the same area, and since February 1, the company has also purchased the properties of the York County Telephone Co., the Seward County Telephone Co., the Golden Rod Telephone & Telegraph Co., the Saline Telephone Co., the Thayer County Telephone Co., the Johnson County Home Telephone Co., the Nebraska City Telephone Co., the Plattsmouth Telephone Co., the Home Independent Telephone Co., of Filley, and the Steinauer Telephone Co.

The system of the Lincoln Telephone & Telegraph Co. now comprises 87 exchanges with a total of 42,000 telephones in service; 7,254 miles of exchange poles and 82 miles of underground conduit; 216 toll stations, and 3,053 miles of toll poles carrying 18,800 miles of toll wire. The system covers twenty-two counties in the richest part of the state, of which Lincoln is the center.

Since acquiring these properties consolidations of toll service have been made at nearly every point in the territory, so that telephone users may avail themselves of service to all points from one telephone. The company has also completed the consolidations of several previously competing exchanges. In perfecting these consolidations the choice of equipment has been based on service conditions existing at the time of the consolidation. The final result will be that Independent equipment will be used in serving a majority of the subscribers.

Consolidations of the various exchanges are being pushed as rapidly as economical engineering will permit. They will all be completed by January 1, 1913.

In Lincoln the company is erecting a new central exchange and general office building, which will be up to the minute in every detail. It is shown completed in the illustration with this article.

The building adjoins and is connected to the present telephone building and with it occupies a frontage of 142 ft. on Fourteenth street and 100 ft. on M street. The location is within the rapidly growing business district and the first story will be devoted to mercantile uses. The entire frontage will be of plate glass and there will be five rooms that will make attractive stores.

The second story will contain the offices of the president, secretary, general manager, commercial superintendent, auditor, plant superintendent and plant engineer. Directly adjoining in the present building will be the offices of the district commercial department.

The third floor of the new building will be devoted exclusively to the uses of the traffic department and will contain the offices of the traffic superintendent, the rest rooms, cloak room and cafeteria for the convenience of the operating force, and the operating room containing the toll and rural switch boards.

The building is so designed that the entire third story may be converted into a single room for manual or automatic switchboard service if desired. The basement, extending under the entire building and the adjoining sidewalks, will be devoted to storage and work rooms. An interior court, lined with white enameled brick, will afford light and ventilation for the inside rooms and basement.

A hydraulic sidewalk lift on the Fourteenth street side will provide for handling supplies and equipment. Special appliances are provided for handling heavy equipment to the terminal and operating rooms.

The building will be of reinforced concrete construction, designed in the latest type and fireproof throughout. The stairs are of iron with marble treads. The corridors and toilet rooms are wainscoted in marble, with terraced floors. Provision has been made for an automatic passenger elevator.

Special ventilation for the operating room will be provided by means of a blower, taking fresh air from the outside, which will be warmed or cooled as the comfort of the occupants requires.

The general heating will be by direct radiation, operated under a vacuum system and controlled automatically by thermostats located in the various rooms.

The exterior of the building will be in light gray pressed brick and terra cotta, with plate glass for all of the windows. The design is artistic and in harmony with the setting. Complete as it is intended to be for all present requirements, the needs of the future have been anticipated by provision in the design for an additional story.

There will be installed in the new building 44 positions of long distance, information and farm switchboard. This switchboard is designed to care for the heavy toll business handled by the Lincoln company and will replace the present toll switchboard formerly the property of the Nebraska Telephone Co. and the present toll switchboard in use by the Lincoln company. The board will be of the latest type of construction and will include every feature to aid in improving transmission and service.

All of the local automatic equipment will be installed in the old building. The new building is laid out, however, so that sufficient space is provided for either a new automatic or manual exchange in addition to the necessary toll boards.

One of the most interesting features of the new manual equipment to be installed is of the "B" board. This board consists of a three-position switchboard section in which all the main exchange automatic lines are multipled. The board will be manually operated and is for the purpose of establishing connections between the toll boards of the three suburban exchanges, University Place, Havelock and College View, and the Lincoln automatic exchange proper. Its installation will not only improve the service from these points, but will also make a smooth cut-over and permit common battery supervision from the automatic telephones. This "B" board will be located in the new

The New Exchange and Office Building Which Lincoln Telephone & Telegraph Company Is Erecting in Lincoln.

building and it is expected that its installation will be completed about December 15.

The contract calls for the completion of the west half of the building by December 1 and the completion of the entire building by April 1, 1913.

Copper Output of 1911 Establishes New Record.

The year 1911 was one of prosperity for the copper industry, both smelter and refinery outputs being the largest in its history, according to a report just issued by the United States Geological Survey. The average price of copper for 1911 was 12.5 cents a pound, slightly below the price of 1910, but near the close of the year the price advanced, the average of December being 13.7 cents a pound. Metal market conditions continued to improve until the average price had risen, in July, 1912, above 17 cents a pound, the highest price since the panic of 1907.

The smelter production of copper in the United States in 1911 was 1,097,232,749 lbs. or 56 per cent. of the world's production, but while the production surpassed that of 1910 by 8,995,317 lbs., the value of the 1911 output was but $137,154,092, compared with $137,180,257 for 1910. The following table shows the mine and the smelter output of nine leading copper-producing states and Alaska for 1911:

State—	Smelter returns.	Mine returns.
Arizona	303,202,532	306,141,538
Montana	271,814,491	272,847,705
Michigan	218,185,236	291,840,201
Utah	142,340,215	146,960,827
Nevada	65,561,015	67,377,518
California	35,835,651	36,316,136
Alaska	22,314,889	27,267,878
Tennessee	18,965,143	18,850,276
Colorado	9,791,861	8,024,488
Idaho	4,514,116	5,152,937

In 1911 21 states and territories contributed to the copper production, but the three leading states (Arizona, Montana and Michigan) produced 72 per cent. of the total output. Arizona produced more than 27 per cent. of the output for the year, Montana slightly less than 25 per cent. and Michigan nearly 20 per cent. Utah took fourth place with an output of nearly 13 per cent. of the 1911 production. The six leading states in 1911 (Arizona, Montana, Michigan, Utah, Nevada and California) produced 94.4 per cent. of the output for that year, and the same states have produced 95 per cent. of the total output since 1845. Alaska produced the highest grade ore in 1911, the average yield being 19.77 per cent. of copper; California was second with 3.67 per cent.; Arizona was third, with 3.57 per cent., and Montana was fourth with 3.13 per cent.

The report contains both a geologic and a metallurgic classification of copper deposits, summarizes the geologic occurrence of ores, briefly discusses the conditions affecting production in the principal districts of the country, and gives the tenor of the ore from the chief producing districts. The report on the production of copper for 1910 contained a map showing all the principal copper producing districts of the United States and the location of the principal reduction plants.

People Want Facts

A New Discovery—Political Promises—Reformers, Etc.

By J. C. Kelsey

"Vote twice for X!"

This startling suggestion appears in bold face type on Chicago billboards. Needless to say "X" is a reform candidate, hoarsely pleading for honesty and decency in public affairs.

I have been trained to vote but once.

But no law or custom seems to worry a man bent upon reforming the earth. He is a law unto himself. He will even kill you to save your soul.

Whole families have been obliterated because some reformer wished to save them.

Job Hedges, a candidate for governor in New York, says: "The trouble with most reformers is that they have a pet remedy you can not take without taking the reformer himself."

In other words, a reformer is a man or woman out of a job, or anxious to keep in one. They have an axe to grind!

A prominent reformer is writing articles for the Hearst newspapers.

Politics and political necessities do make strange bedfellows. It seems strange to see the picture of George W. Perkins on the back page of a professedly despised Hearst paper. But he contradicts old Vanderbilt—that old gentleman who once upon a time suggested that the public be damned.

Now we learn that the public wants facts.

It takes a very wise person to calmly describe exactly what the people want.

The people do not want facts.

Did they not like the fiction of old Doc Cook? And despise the cold facts of Lieutenant Peary?

If the people want facts, they have shown no sign of it. And when they are given the facts, they show no sincere interest in them.

The man with the real pig under his coat never gets much applause. It is the man who pretends to have it who makes the vaudeville top-liner.

A city will have a big agitation over gas or telephone rates, and citizens will hold massmeetings to voice their deep and undying indignation. But when the case is fought out in the slow moving American courts, not one citizen in a thousand cares enough to be present.

Facts are not exacting enough. No book which contains them ever gets beyond the dull and dry textbook.

The public reads "Three Weeks," "Graustark," and other impossible things. Nothing else makes their pulses stir!

The community which so eagerly welcomes one telephone system and forgets all of the burdens of the past, simply rises on its hind legs when the inevitable raise in rates follows.

I note a clipping from the Omaha World Herald.

"The expected has happened. The rates are to be raised since the Bell took over the York County Independent."

Now that certainly *was* expected. The old company paid eight per cent.

Telephone users can not understand why consolidation should necessarily increase the cost of service. The telephone users will have to understand there is no other way out of it.

Local service can be furnished much cheaper than general service.

York people will always be gripped in the potentiality of a raise in rates. Never, until York pays an average of $40 per telephone, will the maw of the consolidation be satisfied.

Aesop tells of the frogs who wanted a new king. Jupiter sent several and each time the selection ultimately met with great disapproval.

Finally, he selected the stork for the temporarily delighted frogs. Their delight was soon changed to despair because the frogs were devoured one by one.

In the first place, the people of York wanted and needed telephones. And they wanted them cheap and got their wish.

The people were happy and so were the stockholders. But a little serpent crawled into their Garden of Eden—

A little creeping suggestion of the beauty of one telephone system and the opportunity to talk to Boston, or Jerusalem or Joppa!

The people wanted one telephone. They thought they did, anyway. They stood for the consolidation and greeted it joyfully. How lovely it was not to have two telephones in a city!

Possibly the authors of the consolidation did not frankly explain this inevitable phase of consolidation—the people have to pay for the bought-out competitor. Who else will?

How else could they pay it, except by a higher rate? Honestly, I hope the consolidation stork works overtime.

The people of York have many economic lessons to learn and they have a good teacher now.

In medical circles, the guinea pig is the goat of experiment.

In economic readjustments, the public is the bleating goat. And the worst part of it is their apparent willingness.

Political promises have been made and broken in our country since the father of our country made his first race.

I have often wondered why the Clapp committee at Washington has not investigated the contributions to George's campaign. I will wager that money was spent like water, and that people heard some very tall promises.

Later, the public fell for a log cabin stunt and on this heavy qualification, made a man president of our beloved country.

Still later, a full dinner pail led a hypnotized public by the nose and landed McKinley in the chair.

Today we have a nice variety of stunts with which you are all familiar.

Political promises to the dear people are not made to be kept.

The laboring man, the farmer and all such are specifically to be uplifted. But you notice the promise is rarely covered by good collateral.

Politics never got really and truly rotten until big business found politics a necessary adjunct.

Do you believe that Ryan and Belmont dug up a million dollars between them for any great purification work for the benefit of the people? Do you really believe that Harriman and other magnates raised money for any greater degree of public benefit? And worse yet, do you believe that Perkins, Munsey and Hanna are putting up a half million dollars for your benefit?

You know better. These men have axes to grind—bet on that.

We can depend upon one thing. Time flies and it will soon be after election. Then we can get back to business again.

It is very queer how our blood boils over the wrongs of our political favorites. It makes men leave home and friends to pass by on the other side.

As I write, a socialistic speaker is reciting the wrongs done to the human race. It is a pathetic recital of oppression.

No one seems to be light-hearted any more!

And there seems to be another institution which is becoming heavy-hearted. It is the public service commissions.

They are crowded with telephone cases from roof to garret. Telephone disputes give them more trouble in one month than railroads do in one year.

The New York commission seems to be unusually busy. There is an unusual case before the up-state commission now.

The New York Telephone Co. has refused to give service to a concern called the Metropolitan Telephone & Telegraph Co.

I could not help but laugh at some of the ingenious excuses put up by the New York Bell experts. Anyway, the commission has ruled in favor of the petition for telephone service.

What I want to call your particular attention to is the refusal of the Bell company to obey the commission's orders.

A commission is a fine thing, as long as it gives decisions against the other fellow. But the moment they hand down a contrary decision, an appeal is taken.

About the only use Bell corporations have for commissions is their willingness to advance their rates and keep the other fellow out. It is a good thing, too.

It protects the pioneer, and justly, too.

Of course, that is human nature and is exactly what you and I would do. But the chances are that this very contempt for the commission on a corporation's part will eventually kill the goose that lays the golden egg.

Ohio voted for Home rule on the question of franchises; in one blow destroyed the principal power of a state commission; took away the certificate of necessity.

Without some one in power on this question, the raise in rates, following the consolidation of telephones, will be offset by competition. I do not see how it can be avoided.

The people want facts. What will they do with them after they get them?

We have just heard that Morgan & Co. got a handsome fee of $13,500,000 for their kindness in getting the Harvester people together.

What will the people do about this? Here is a palpable fact for the dear public.

The only thing that will result from this fact is that every man who learns about this big fee will be sorry he did not get in on it.

Morgan & Co. have great expenses. It costs considerable money to run such a place. Why not get big fees?

If you are sick and see a great city physician, you are not surprised to receive a huge bill.

Why should the most eminent firm of business doctors not charge a great fee for their Harvester work? It is certainly logical, anyway.

I have no doubt that Morgan & Co. earned a handsome fee for getting the steel mills together.

The public have the facts. The fee was close to $65,000,000.

What will be done about it? Nothing!

Morgan & Co. do not occupy New York exclusively. There are other great concerns. I would guess that they do not exceed five in number.

These other concerns do not appeal so much to the public mind, but they pull down big fees. Nobody cares, nor is anyone interested.

These five or less concerns of equal strength do not let much get away from them. I don't blame them.

Those who do not believe that there are a few houses of this kind, let them start a railroad somewhere where the crowd do not believe it is needed.

Lots of people have brooded over Arthur Stillwell's troubles. He built two railroads, and he had his troubles because the roads were actually forbidden.

The financial coterie did not believe the Kansas City Southern was needed. The Katy, Santa Fe, Rock Island and Frisco were already reaching the Gulf.

Arthur Stillwell defied them, and he did so without success

The public have had these facts for a long time. What did they do?

Honestly, sophistries and theories are much more comfortable for the public.

The public got the facts about the Panama Canal.

They knew that a group of financial gentlemen got hold of the old Panama concern for a song, and patriotically gave it to Uncle Sam for $40,000,000. Could you reasonably expect these men to give away their valuable time for nothing?

They knew that the newspapers threatened with libel suits were not molested. A nice bunch of facts, but the public believed the story, each according to his politics.

It gets back every time to the celebrated ox which was gored.

There is nothing on earth so sure as evolution toward a certain goal of perfection. And let me also say, there is nothing so slow.

The influence of any man or group of men count as a grain of sand in our Pacific Ocean.

The discharge of shot and shell and the horrors of peace, make little or no impression upon this march to a better earth.

If there were no chance to run for an office, we would hear little about the wrongs and terrors of life.

You hear one man threatening you with Democratic hard times. And you hear another reminding you of the Republican hard time horror of 1907.

Both were bad and had nothing to do with political faith. They were merely the grunts of agony of nature trying to adjust the human tendency of living beyond our means.

Panics and hard times will come and go, even unto the end of the world. It is the nature of things.

What the public needs is another Doc Cook, a false prophet. This amiable romancer kept the dear public excited for a long while.

No one had any time to worry over commercial crimes. Cook really was a benefactor after all.

Attorney Brandeis disagrees with the Perkins element, that no one should fear commercial power. He calls attention also to the profit-sharing indulged in by the Steel company.

He says that only superintendents, foremen and petty officials get in on this deal. Of course, this is debatable. Did the numerous laborers care to come in and buy?

I have seen men of considerable strength decline to buy stock in their own company.

Such a course is never obligatory.

Great pension schemes sound very philanthropic, to those who don't know. As far as I am concerned, I do not believe in them.

It does give a man something during his decaying and dying hours, meager at the best. But it would be better if he could be better paid in the flush of manhood, provided, of course, he has sense enough to be thrifty. Besides, the temptation to discharge a man who has been with you twenty years and is an indifferent success is too strong.

I know of numerous men who were discharged on account of age, who would have been entitled to a pension in a few more short years.

The public do not want facts. They are too gruesome. They have too much horror. They make us sick.

Facts are always ugly, and we all despise the ugly.

The Pharisee took the other side of the street, even as you and I.

When a man says the public wants facts, I fully think he left his records and instruments at Etah, or somewhere equally impossible.

MORAL: Sting the people first. Then sell them salve.

Practical Telephony for the Practical Exchange Manager

The Seventh Installment of a Series of Articles Relating to the Management and Operation of a Moderate Size Exchange — Methods of Digging the Pole Holes and Setting the Poles — The Reinforcing and Protection ot Poles — Estimating Cost of Line

By H. R. Van Deventer

When staking out the pole route, care must be taken to have the stakes exactly in line with each other. A good method when a level is not at hand, is to start at the first stake and sight to a stick as far off as can be readily seen, then set the pole stakes on the line between these

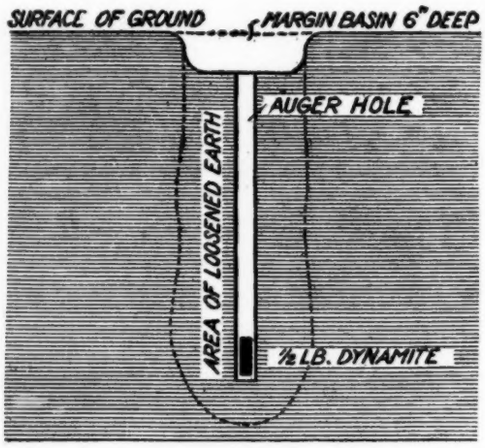


Fig. 11 Method of Digging Pole Holes Using Dynamite.

points. Allowance for this work must be made when estimating cost.

Sometimes it is necessary to set a pole in very hard clay or frozen earth. Under these conditions dynamite can be employed to advantage in digging the pole holes.

The illustration, Fig. 11, from Popular Electricity, gives a very good idea of how this is accomplished. A chuck drill for sub-soiling as shown in Fig. 12 is used for making the hole. It is made of 1¼-in. wrought iron pipe. The part *A* is 4 ft. long with a full threaded tee at one end. A steel, pin-shaped point, 6 ins. long is welded into the other end of the pipe. The handle is made up of two 12-in. pieces of 1¼-in. pipe screwed into the tee at *H*. A piece of 1¼-in. pipe, *K*, 4 ft. long that is threaded at one end and provided with a coupling at the other end, is intended for use as an extension for the main part *A*.

The drill can be buried by one or two men. The hole is made about six inches less in depth than the hole which is to be obtained by blasting. The cap and fuse is attached to the dynamite and it is dropped to the bottom of the hole without tamping; that is, no earth is to be placed on top of the dynamite so that there will be practically no resistance between the dynamite and the surface; then light the fuse and get out of the way.

The method is simplicity itself as the chuck drill will almost go through solid rock. Of course in solid rock, it is necessary to use a solid bar and sledge.

Regarding the amount of dynamite necessary, the use of a half pound of 60 per cent. Atlas or Hercules dynamite is ample for a five-foot hole. DuPont dynamite, 60 per cent., is recommended as it is quick-acting, and follows the line of least resistance (the untamped hole) in such quick time as to have practically no shattering effect on the ground, except within the immediate radius of the drilled hole.

The number of holes that can be prepared and shot in a day depends upon the men and the character of soils. Two men are able to punch, load and shoot in the neighborhood of 200 holes per day. As an example of the work where the blasters must firmly tamp all holes such as when sub-soiling in agricultural work, two men can shoot 194 holes on 15 foot centers. Of course the telephone pole holes are further apart, and the men must cover more distance.

A portable magazine should be used for carrying the dynamite, and the instructions which accompany the explosives as to capping, firing and handling should be carefully read and followed.

As to the average cost per hole, 60 per cent. dynamite costs about 22 cents a pound. One cartridge, that is a half-pound, is enough for a hole. Allowing one cent for the cap, and about two and a half cents for the fuse, the total for material will be about 15 cents. The labor cost will be about one hundred holes per man per day.

Of course for work of this class, the materials will almost

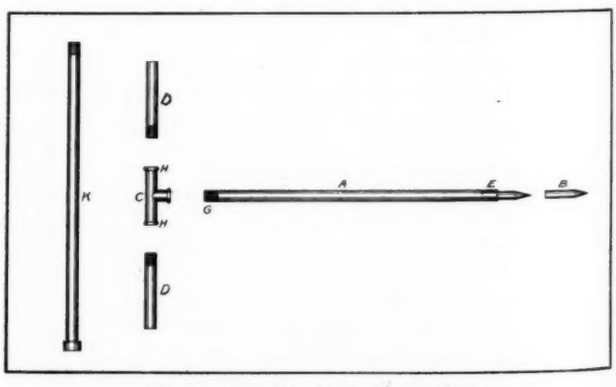


Fig. 12. Details of the Chuck Drill.

invariably be purchased in quantities. The advantages of quantity prices can be obtained, thereby reducing the cost even below these figures.

The instructions furnished by the makers for handling the dynamite are very complete. As it is really a very simple matter to handle it safely, this method of making holes should be extensively used.

Poles should be set absolutely vertical except on corners.

These should be set out of the vertical so that the pole leans against the pull of the wires. Of course the tops of the corner poles should be in line with those of the other poles. The reason for setting the bottom out of line is to have the pull that comes on the corner pole taken up as it were, by the slant.

At corners, have the distance only 75 or 80 feet between poles, instead of the usual 130 feet. At railroad crossings set the poles 12 feet from edge of nearest rail and plan them so that the lowest wires will be 30 feet above the rails. Use double cross arms and insulators at railroad crossings and do not forget these extra items of cost in making up estimates.

It is evident to any one who has ever set a fence post that the earth around the pole should be carefully tamped. It is not well to let one man attempt both filling in and tamping, use two men for this work, one for filling in with a shovel, and the other for securely tamping the earth in place with the bar.

In very moist places the use of a few brick bats or loose stone around the pole will aid materially in giving it a firm foundation. In a marsh it is well to build a platform and support the pole in the middle by some stays arranged in tripod form and then bury the whole affair. The large area of the bottom will give the pole a secure footing and it will stay in position for a long time if properly guyed. There is no danger of a pole set in the water rotting, except at the water line, as is the case with all poles.

Often the life of poles can be materially prolonged if, instead of setting them in the ditch usually alongside the road, they are set well up the bank. It is a little harder to set a pole in this position, but the extra time required is more than paid for by reduced maintenance and the longer life of the line.

In some localities poles suffer exceptionally from rot at the ground line and the writer has tried many materials, and methods of setting to overcome this. One of the most satisfactory seems to be reinforcement at the ground line, as shown in Fig. 13. This reinforcement is made of cement, soapy water being used to make it up. It forms a protection for the pole at the ground line which seems to hold and which does not crack or come away from the

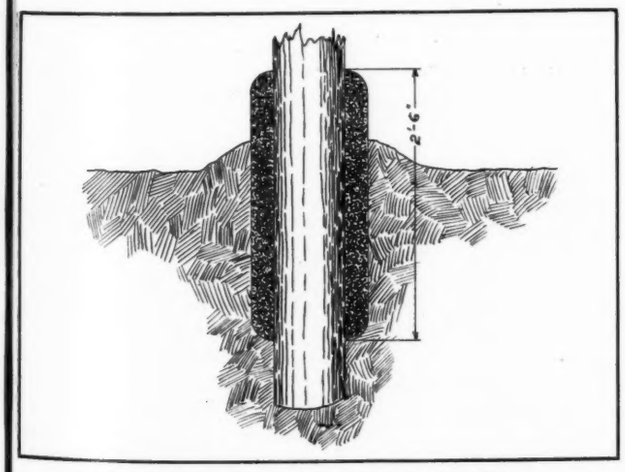


Fig. 13. A Pole Reinforced at Ground Line.

wood. The space above the line where the reinforcement is applied, should be well creosoted or painted.

This should be applied to new poles and is not intended as a treatment for poles that are partially decayed, although it could no doubt be readily applied to them. Ordinary cement will not do as it seems to crack and scale off. It very soon becomes a menace as it gathers water instead of shedding it.

If a pole has a few large cracks in it when set, a short life may be predicted. These cracks should be filled up with tar, the cement mixture, or with almost anything that will keep the water out. Poles which are cut during the winter are considered the best and are usually free from cracks, if they have been properly kept.

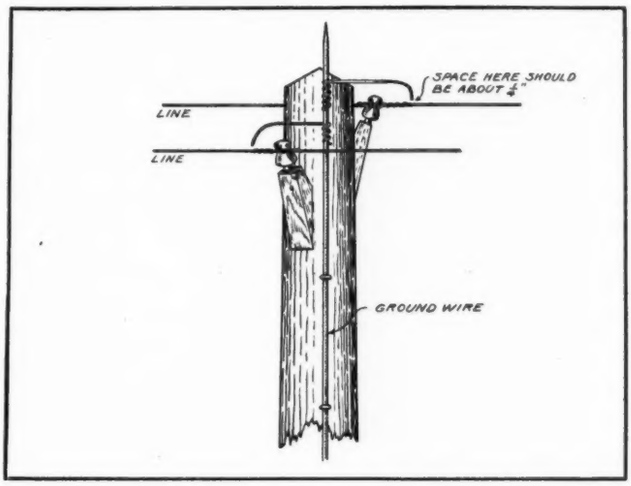


Fig. 14. One Form of Lightning Protection for Lines.

Where poles are set at corners exposed to knocks from hubs of vehicles, etc., a cheap means of protection is line wire securely and closely wrapped around the pole and stapled at every turn or two. The usual iron reinforcement is difficult to get in the country and usually must be fitted to the individual pole on which it is to be used, whereas the iron wire is always at hand and easily applied. In some particular locations, the poles are subjected to attacks from horses and cattle, which chew or rub against them until they are loosened.

This occurred in the early days of the first telegraph lines across the continent. Buffaloes would come from a distance to the pole line and "line up" before the poles and rub against them to scratch their backs, until the poles were actually overthrown. The poles were thereupon wound with barbed wire but this far from remedying the trouble, simply aggravated it as the buffaloes seemed to appreciate the superior scratching quality of the new fencing, which evidently was just suited to their tough hides.

A final solution for the trouble was arrived at by attaching vertically to each pole, three or four cross-cut saws. After this there was very little "back scratching." With the disappearance of the buffaloes, the need of this remedy was eliminated.

Of course buffaloes do not menace the average telephone line, but there are at many cross roads, poles that are worn out, knocked out of line, and otherwise put in bad shape because every buggy collides with them. They are also used as a hitching place for every idle team. A little time spent on properly protecting them when first set, will contribute greatly to their life, and the cost will seldom exceed 50 cents per pole.

In addition to planting the pole vertically and properly tamping the earth around it, it is well to hill the earth up for about a foot above the level and to thoroughly tamp this hill instead of leaving it loose. Slick the hill down with clay if possible so as to make it shed the water from around the foot of the pole. Pack it tight so that it will no disintegrate and, after the line has been up for a couple of weeks or more, have a man hill up around the pole again, as the earth is bound to settle in the majority of

(*Continued on page* 706.)

The Propagation of High Frequency Along Wires

Some Practical Aspects of High Frequency Multiplex Telephony and Telegraphy—Its Relation to Radio-Telegraphy and Radio-Telephony—Advantages Over Existing Telephone Systems—Reprinted from The Journal of the Franklin Institute—First Instalment

By John Stone Stone

A new art has been born to us. The infant art of high frequency multiplex telephony and telegraphy is the latest addition to our brood of young electric arts. It is certainly a most promising youngster and should, after the manner of its kind, call lustily for its share of attention and sustenance.

More than twenty years ago the advent of this new art was definitely prophesied by the late J. W. Gibboney[1] and the author[2] in this country, and in France by the well known electrical engineers Maurice Hutin and Maurice Leblanc. But though there was at that time a vigorous contest for priority which extended over a period of years, it is not with these early records, prophetic though they be, that we have to deal now. They are buried in the archives of the United States Patent Office. Our interest today is in the vital practical aspects of the new art, based upon the propagation of high frequency electric waves along wires, and certainly, although twenty years ago there seemed to be much promise of the new art, there were indeed surprisingly few practical aspects to the subject.

For the past three years or more Major Geo. O. Squier, of the signal corps of the United States army, has conducted a systematic investigation of the propagation of high frequency electric waves along wires and of the practicability of their use in the transmission of signals and of speech along actual telephone cables and air lines. His investigations have also dealt with electrical reasonance as a means of segregating, at the receiving end of the line, high frequency currents of different frequencies simultaneously propagated along the line, and the selective reception of the energies of these different currents, each in a different receiver circuit made responsive only to the variations in the amplitude or strength of the current it is resonantly tuned to receive.

The results of his labors are to demonstrate beyond a peradventure that not only Morse signals but speech may be transmitted over the ordinary telephone cable and pole line circuits and to very considerable distances by means of high frequency electric currents or waves, and that a large number of telegraphic or telephonic messages may thus be transmitted simultaneously over a given telephone or telegraph circuit without interfering with each other through the use of electrically turned or electrically resonant receivers. Moreover, he has shown that the new high frequency multiplex telegraph and telephone system may be superimposed on the older systems or the new high frequency apparatus added to lines equipped with the usual telegraph or telephone apparatus without interfering in any way with the operation of this older apparatus or being interfered with by it.[3]

Major Squier has dedicated to the public his patents relating to this new art—an act which, though laudable in the spirit it displays, is nevertheless unfortunate, as it is more likely to retard the progress of the new art than to advance it, since what is everybody's business is nobody's business. Capital may hesitate to enter a new field and promote an undertaking in which it is led to believe that it will meet with unrestricted competition as the reward for its enterprise.

The frequencies of the electric waves or currents propagated along the wires in this new art are, so to speak, "above the limit of audibility of the receivers" or are ultrasound frequencies. In other words, each of the electric currents propagated along the telegraph or telephone line is of so high a frequency that it can produce no audible effect in the telephone receiver through which it passes, as long as its strength or amplitude remains constant. In fact, the frequencies of the currents used in this new telegraphy and telephony are 20,000 or more alternations per second, and correspond, therefore, to the frequencies of the air vibrations of sounds whose pitches are above the limit of audibility of the human ear.

In the new telegraphy and telephony, the telegraphic signals and the voice are transmitted over the line wire by suitable variations in the amplitude or strength of the otherwise uniform high frequency current. The signals and the voice are received in a magneto telephone receiver connected in a local circuit which included a device capable of rectifying the high frequency current used. The rectifier employed is preferably an Audion,[4] although a Wollaston[5] electrode and perhaps other radio-telegraphic detectors, particularly the so-called crystal rectifiers, may also prove serviceable.

The rectifier in the local circuit at the receiver converts the high frequency current of the line wire into a pulsating current of double the frequency, or, what is the same thing, it converts the high frequency current into a normally uniform unidirectional current with a superimposed alternating current of double the frequency of the line current. The telephone receiver is mute to the alternating component of the rectified current, but responds to the most minute variations in the strength of the unidirectional component of this current. Variations in the amplitude or strength of the high frequency line current are faithfully reproduced in the strength of the unidirectional component of the local receiver current. In this way the telephone receiver is made highly sensitive to variations in the strength of the high frequency line currents, while absolutely mute to that current when its amplitude is constant.

However much the lack of definite ownership and consequent lack of definite financial backing may militate against the rapid commercial adoption and extension of the new art, there can be little doubt that the actual transmitting and receiving apparatus of either the high frequency multiplex telegraph or telephone will receive ample attention on the part of inventors and engineers. This appara-

[1] U. S. patent No. 481,529, telephony, application filed Feb. 8, 1892, patent granted Aug. 23, 1892.

[2] Interference in the U. S. Patent Office No. 17,197, Stone vs. Hutin & Leblanc, subject multiple telephony. Record for Stone and record for Hutin & Leblanc.

[3] Paper by Geo. O. Squier in the Proceedings A. I. E. E., May, 1911. U. S. patents to Geo. O. Squier, Nos. 980,356, 980,357, 980,358, 980,359, all granted Jan. 23, 1911, and all dedicated to the public.

[4] Proc. Inst. Elect. Eng., xxv, pp. 219-247, 1906. Elect. World, xlviii, p. 1109, 1906. Ibid, xlviii, p. 1186, 1906. U. S. patent No. 879,532 of 1908 to de Forest, and U. S. patent No. 884,110, of April 7, 1908, to J. S. Stone and S. Cabot.

[5] Paper by Dr. Wm. H. Wollaston, Phil. Trans. of the Royal Soc. of London, vol. 91, part ii, pp. 430-432, published 1801.

tus is destined to be and is even now being perfected in its every detail, for the reason that the transmitting and receiving apparatus of the new multiplex telegraph and telephone is identical with that of the new continuous wave train radio-telegraph and radio-telephone respectively. We have here no mere analogy or similarity; it is an identity.

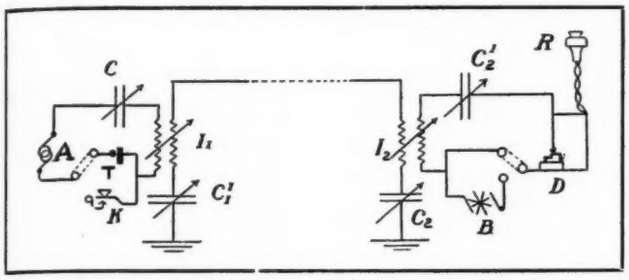


Fig. 1. Simplest Practical Form of new High Frequency System.

Thus a number of continuous wave train radio-telegraphic transmitters connected to a telegraph line and an equal number of radio-telegraphic receivers similarly connected to the line, actually constitute one of the new high frequency multiplex telegraph systems. Correspondingly one of the new multiplex telephone systems may be constructed by attaching a number of radio-telephonic transmitters and an equal number of radio-telephonic recivers to a telephone circuit.

Of course, the perfection of the transmitter and receiver is by no means all or even the most important practical desideratum in the evolution of the new art. For the realization of the great economies this art seems destined to effect in the cost of telegraph and telephone circuits, much will have to be done in the way of adapting the new system to the complex existing and future telephonic exchanges, their mechanisms and networks of circuits. In its application to the existing telegraph systems, less difficult problems will in general have to be met. But even in the application of the new multiplex telegraph to one of the simplest existing telegraph installations, it is more than probable that some unforeseen conditions will arise to meet which will require the exercise of some ingenuity and skill.

The relation of the new high frequency telegraph and telephone to radio-telegraphy and radio-telephony is to be readily seen in Fig. 1, which illustrates the new system in its simplest practical form. The diagram shows, in fact, two radio-telegraph or radio-telephone stations with a connecting wire between them to guide the waves from the transmitter to the receiver.

In this arrangement the current is supplied by a high-frequency alternating current dynamo A, which must be capable of supplying 20 watts at 10 volts and at not less than 20,000 cycles per second. These requirements are more than met in the Alexanderson high frequency dynamo,[6] which has already been constructed to a capacity of at least two kilowatts and develops at its highest speed currents of 100,000 cycles per second. In the case of high frequency telephony, this dynamo has to meet a further requirement which is not demanded of it by high frequency telegraphy, and this requirement is perhaps the most difficult one to satisfy. It is that the amplitude of the current the dynamo supplies must be absolutely smooth and can have no variations or ripples on it of periods corresponding to the periods of audible tones. In this connection the author noted that a two kilowatt Alexanderson dynamo gave a loud musical tone in the telephone at the receiving end of the line when the dynamo was worked with the normal separation between the stator and rotor, and he found it necessary to increase the air gap to a point at which the capacity of the dynamo was about one-eighth of its normal rated capacity before a quiet line was secured. Even at this adjustment, however, the dynamo had more than ten times the required capacity.

Owing to the small amount of energy required of the dynamo, there is no particular difficulty in constructing machines to meet the demands, very unusual though they be, particularly in the case of high frequency telephony. It is not likely, however, that high frequency dynamos will long be used in this connection, because oscillators giving sustained oscillations or continuous trains of waves of ultra-sound frequencies, constructed on the general principle of the Elihu Thomson oscillator,[7] are very much cheaper and less cumbersome than the dynamo, while requiring less care and skill in their operation. The early Thomson oscillator has been considerably improved, particularly through the use, for uniform cooling of the spark or arc gap, of various devices, such as massive and water-cooled electrodes.[8] Working in this direction, Poulsen[9] has immersed the arc or spark in a gaseous atmosphere of higher heat conductivity than air, while de Forest has gone so far as to immerse the arc or spark in running water. The latest type of this oscillator is described very fully by E. Leon Chaffee in The Journal of the Franklin Institute for May, 1912, and also in the Proceedings of the Am. Acad. of Arts and Sciences, vol. xlvii, No. 9, Nov., 1911.[10]

In the arrangement of apparatus illustrated in Fig. 1, when the switches at the transmitter and at the receiver are both thrown up as shown, the arrangement is a high frequency telephone system. When the switches are both thrown to their lower contact points, the arrangement becomes a high frequency telegraph system. Hence the one diagram may be used to sketch the operation and requirements of both the new telegraph and the new telephone.

In the new telephone system, when the transmitter T is spoken to, it modifies the amplitude of the high frequency current in the primary circuit of the induction coil I_1 in exactly the same way that it modifies the strength of the battery current in the primary circuit of the induction coil in the old telephone system, and, as already described, the telephone receiver R at the receiving station responds, owing to the fact that exactly corresponding fluctuations result in the unidirectional component of the rectified current in the local circuit at that station.

In the new telegraph system, the operation of the telegraph key K, to send Morse signals alternately throws the high frequency current on the line and cuts off the supply of this current from the line. The result of this would be only to make successive faint clicks in the telephone receiver R as the current is thrown on and off, except for the periodic interrupter B, which may be of the nature of a revolving commutator or a mere buzzer. This interrupter serves to break the incoming wave trains constituting the Morse signal elements up into a succession of much shorter wave trains having a frequency of about 450 impulses per second, which when rectified give rise in the telephone receiver to a high pitched musical tone of great audibility. The Morse signals now are audible as a succession of long and short intervals of a high-pitched musical sound, as in radio-telegraphy. From the foregoing and the diagram of Fig. 1 the essential differences between the new telegraphy and the new telephony will easily be seen.

[6]Trans. Am. Inst. Elect. Eng., vol. xxviii, p. 399.

[7]U. S. patent to Elihu Thomson, No. 500,630, of July, 1892.

[8]U. S. patents to J. S. Stone, Nos. 767,983 and 803,199.

[9]U. S. patent to V. Foulsen, No. 789,449.

[10]A further improvement in this oscillator is described in U. S. patents to J. S. Stone, No. 802,431 of 1905 and No. 946,167 of 1910.

Some of the more essential characteristics of the simple system shown in Fig. 1 may prove of interest, particularly as they have not as yet, so far as I am aware, been clearly set forth. The induction coils I_1 and I_2 are wound without any iron in their cores, since in the first place the presence of iron is not needed to secure a large mutual inductance between the primary and the secondary circuits, because a high degree of coupling[11] between these circuits is not desirable. In the second place, the presence of iron in the core of the coils would introduce a loss of energy, through hysteresis, owing to the high frequencies used, which would give rise to an effect equivalent to the presence of a considerable dissipative resistance in the primary and in the secondary circuits. The arrow through the symbols for the coils, indicates that these coils are adjustable with respect to their degree of coupling in the same way and for the same reason that the coupling of the corresponding coils is made adjustable in radio-telegraphy and radio-telephony. Similarly, the arrows through the symbols for the condensers $C_1C'_1C_2$ and C'_2 indicate that these condensers are of adjustable capacity.

The function of the variable condensers at the transmitting and receiving stations is to electrically "tune" these stations. In the transmitting station of the system shown in Fig. 1, the so-called tuning is quite different in the case of the telephone and telegraph systems. In the case of the telegraph, the coupling of the coil I_1 and the capacities of both condensers at the transmitter are adjusted with reference to the production of a maximum current in the line wire, as indicated by a hot wire ammeter connected in the secondary circuit.[12] In the case of the telephone system, the coupling of the coil I_1 is made very small. Each of the condensers at the transmitting station is then independently adjusted to make the current in the circuit in which it is included a maximum, as indicated by hot wire ammeters connected in each circuit. The coupling of the transmitter coil is then increased until the tuning adjustment of one circuit interferes with the tuning adjustment of the other, and the circuits are readjusted, each by its own condenser, for a maximum of current in itself.

The reason for the radical difference in the tuning of the transmitter station in the telephone and telegraph systems may not be obvious. It is due to the fact that in the telegraph it is the actual amplitude of the high frequency waves propagated along the line that determines the strength or loudness of the signals heard in the receiver, while in the telephone system it is the magnitude of the variations in amplitude of the high frequency waves propagated along the line that determines the loudness of the received speech. Moreover, in the case of the telegraph the loudness of the received signal is the sole object, while in the case of the telephone a still more important requirement is excellence in the quality or articulation of the transmitted speech. In the case of the telegraph, therefore, the adjustment of the transmitter station is such as to produce the maximum amplitude of the transmitted waves, while in the case of the telephone system the adjustment is primarily adapted to securing the best quality of the transmitted speech, and, incidentally, to produce the maximum variation in amplitude of the transmitted waves.

Thus, by loosely coupling the primary and secondary circuits at the transmitter and then adjusting the primary circuit for a maximum of current, the reactance of the primary is made zero and the impedance of the primary is reduced to practically the mere resistance of that circuit, so that the resistance of the telephone transmitter becomes practically the sole factor in determining the primary current. Obviously this makes the variations in the amplitude of the high frequency current due to variations in the resistance of the telephone transmitter a maximum. On the other hand, telephone engineers will realize that the elimination so far as possible, of all reactance and resistance except that of the telephone transmitter, from the primary circuit at the transmitter station, is a prerequisite to good quality or articulation of the transmitted speech.

At the receiving station of the system shown in Fig. 1, whether it be used as a telegraph or a telephone system, the tuning of both primary and secondary is directed merely to the production of a maximum current in the secondary circuit. For this tuning the telephone receiver is used as the indicating device, since the current at the receiving station is not sufficient to permit of the use of a hot wire ammeter. A sensitive galvanometer may sometimes be used with advantage for tuning purposes in place of the telephone receiver.

The system shown in Fig. 1 is obviously not of much general utility, since it provides only for one-way transmission. It is shown and described at some length merely because of its simplicity and to bring out the analogies and the distinguishing features of the new telegraph and the new telephone systems.

(To be continued.)

[11]The coupling coefficient of the induction coil is $\frac{M}{\sqrt{L_1L_2}}$, where M is the mutual inductance, and L_1 and L_2 are the inductance of the primary and secondary coils respectively.

[12]J. S. Stone on the "Maximum Current in the Secondary of a Transformer," Physical Review, vol. xxxii, No. 4, April, 1911. P. O. Pedersen. Uber. d. Empfang kontin. elektromagnet Wellen usw. in the Jahrbuch der Drahlosen Telegraphie und Telephonie, 1910.

Partial Vote Favors Merger in Missouri Town.

A proposition to merge the two telephone systems in St. Joseph, Mo., is being submitted to the subscribers of both the Home and the Bell companies. A partial tally has been reported, as follows:

BELL COMPANY.	
Signed in favor of merger	242
Signed against merger	2
Refusing to sign either way	17
Total number interviewed	261
HOME COMPANY.	
Signed in favor of merger	86
Signed against the merger	4
Total number interviewed	90

The Commerce Club has gone on record as favoring the merger, adopting the following resolutions:

"Whereas, This board recognizes the fact that two separate and distinct telephone systems are unnecessary to the business requirements of the community and constitute a financial burden upon our people; therefore, be it

"Resolved, That we favor the consolidation of the two companies doing business here under one distinct and exclusive system, the service to be provided and rates to be charged to be prescribed and regulated by the Public Utilities Commission provided for under the organic law of our municipality. Also, be it further

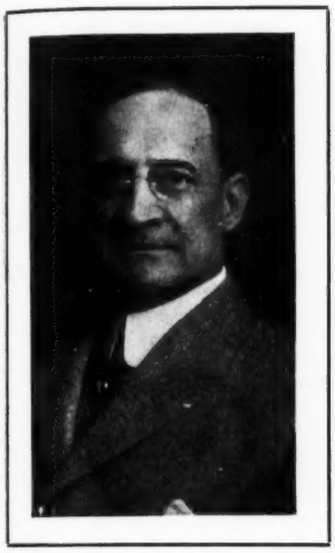
"Resolved, That we call the attention of the public to the fact that in the proposition for consolidation as submitted by the telephone companies, it seeks to commit those favoring consolidation to the rates now charged by the Bell company."

Refuse Fifty-Year Franchise.

The mayor and common council of Netcong, N. J., have refused to grant a fifty-year franchise to the New York Telephone Co. A vote had previously been taken by the council to get an expression of opinion as to the length of time the company's franchise should extend. One member favored one year, two would give a grant for ten years, while three favored fifteen years.

A Quartet of Men Prominent in the Telephone Field

CHARLES B. HALL of Ann Arbor, Mich., has been connected with the telephone business since 1902. He was born in Aurora, Ill., October 16, 1867, and early in life learned the shoe business, rising to the position of credit man and manager of a wholesale boot and shoe concern in Kansas City, Mo., in the employ of which he remained four years. For nine years he was a partner in a wholesale shoe business in Omaha, Nebr., and Sioux City, Iowa. In 1902 this business was liquidated and Mr. Hall entered the telephone field, becoming chief commercial agent for the Cleveland Bell Telephone Co., at Cleveland, Ohio. This position he held until 1907 when he was made chief contract agent of the Home Telephone Co., Detroit, Mich. After a year's service with the Detroit company, he accepted the position of general manager of the Washtenaw Home Telephone Co., Ann Arbor, Mich., which also operates in Ypsilanti and Dexter and is one of the prosperous companies in Michigan. Mr. Hall has contributed materially to the success achieved by the company with which he is connected.



JOHN ALLEN RUSSELL, who is sales engineer of the Kellogg Switchboard & Supply Co., Chicago, was born in Chillicothe, Ohio November 1, 1869. In 1883 he entered the employ of the old Bell telephone company at Peru, Ind., and in 1885 took a position with the Chicago Telephone Co. When the Independent movement began he was engaged in construction and engineering work on the new exchanges which were built. He was associated, successively, with the Western Telephone Construction Co., the Hipwell company, the Swedish-American company and later with the Automatic Electric company in the employ of which he remained six years. He was also associated with the Dean Electric Co. just prior to becoming sales engineer for the Kellogg company in February of this year. Mr. Russell is a Mason. He is well known to Independent telephone men all over the country, and boasts that he has never missed a national Independent convention. His particular field of activities has been in the states of Illinois, Ohio, Michigan, Pennsylvania, New York and Virginia.

EDWARD F. KIRKPATRICK, sales manager of the Grand Ledge Clay Product Co., Grand Ledge, Mich., with headquarters in the First National Bank Bldg., Chicago, was born in Pittsburgh, Pa. on July 4, 1862. He was educated in the Pittsburgh public and high schools and the Western Pennsylvania University, from which institution he graduated. He has spent 26 years as a salesman in electrical lines. Of this time ten years was spent with the Westinghouse Electric & Mfg. Co., four years were spent in the employ of the Fort Wayne Electric Works and General Electric Co. For the past twelve years Mr. Kirkpatrick has been engaged in the underground conduit business, seven years of which he was general sales manager of the McRoy Conduit Co. Since January, 1908 he has been general sales manager for the Grand Ledge Clay Product Co. He is a 32 degree Mason, and is a member of the Blue Lodge, a Shriner, and a Knight Templar. Mr. Kirkpatrick has attended the conventions of the National Independent Telephone Association for the past eleven years.

JOSHUA GEORGE SPLANE, receiver of the Pittsburgh & Allegheny Telephone Co., Pittsburgh, Pa., and formerly president of the company, was born in Pittsburgh, in 1867. He was educated in the public schools and graduated from the University of Western Pennsylvania. He was connected with the Standard Oil Co. from May 1885 until July 1903, when he accepted the presidency of the Pittsburgh & Allegheny Telephone Co., and later, on January 10, 1911, was appointed receiver for the company. The Pittsburgh & Allegheny Telephone Co., or the P. & A. as it is called, furnishes the people of Pittsburgh and Allegheny with Independent telephone service. The company has exchanges in Pittsburgh Allegheny, Braddock, Homestead, McKeesport, Carnegie, New Kensington, Corapolis McKee's Rocks, Bellevue, Crafton and Duquesne. Mr. Splane is a member of the Duquesne, American Tariff and Pittsburgh Country clubs as well as the different Masonic bodies. He is prominent in Pittsburgh business circles where he has resided all his life.

Condition of Chestnut Poles after Five and Eight Years Service

Effect of Seasoning and Treating Poles as Deduced from Inspections of Two Experiental Pole Lines, Five and Eight Years Respectively, after their Establishment—From a Bulletin of the Forest Service, U. S. Department of Agriculture.

By Carlile P. Winslow.

The two lines, built in cooperation with the American Telephone & Telegraph Co., are known as the Warren-Buffalo line and the Poughkeepsie-Newton Square line. In the former are 1,164 30-foot chestnut poles, set between Warren, Pa., and Dayton, N. Y.; in the latter are 72 30-foot chesnut poles, set near Flanders and Morris County Junction in northern New Jersey.

Experimental Poles in the Warren-Buffalo Line.

The experimental poles for the Warren-Buffalo line were cut and peeled during 1902 and 1903, and delivered at stations near Thorndale, Pa., and Dover, N. J., where they were placed in single tiers on skids about two feet above the ground to season. In June and July, 1905, some were butt treated with various preservatives by the brush method, and others with coal tar creosote by the open tank method. The following extract from Forest Service Circular 104, "Brush and Tank Pole Treatments," by Carl G. Crawford, describes the two methods of treatment:

Condition when set.[1]	Preservative used, sold as—	Method of treatment.	Absorption secured per pole.		
			Average.	Maximum.	Minimum.
			Pounds.	*Pounds.*	*Pounds.*
Green		Untreated			
Seasoned		do			
Do	Coal tar	Brush, 1 coat			
Do	Creolin	do	3.39	4.13	2.88
Do	do	Brush, 2 coats	7.60	10.63	5.5
Do	Wood creosote	Brush, 1 coat	2.42	3.63	1.75
Do	do	Brush, 2 coats	5.43	6.63	3.25
Do	S. P. F. carbolineum	Brush, 1 coat	3.55	5.13	1.38
Do	do	Brush, 2 coats	4.38	6.63	3.0
Do	Avenarius carbolineum	Brush, 1 coat	1.98	2.25	1.13
Do	do	Brush, 2 coats	4.52	6.63	2.5
Do	Coal-tar creosote	do	7.77	11.75	4.13
Do	do	Open-tank	22.41	44.0	8.0
Green	do	do	15.20	39.0	4.0

[1] Describes also the condition at the time the treatment was applied.

Table No. 1. Method of Treating Poles of Warren-Buffalo Line.

Brush treatment.—It is generally conceded that the portion of a pole most subject to decay is that between two and eight feet from the butt—about 20 square feet. This part fails when the remainder is still in a good state of preservation. It was therefore selected for treatment.[1] When the pole is set the treated portion extends two feet above and four feet below the surface of the ground. From one to three coats were applied, according to directions received from the manufacturer. Most of the preservatives were heated to a temperature of from 150° to 175° F. Particular attention was paid to filling all checks and knot holes and to working the preservative into the wood, thus protecting against decay those parts most subject to attack. Careful notes were made of the condition of the poles as regards checks, knot holes, etc. The amount of preservative absorbed by each pole was accurately determined by recording the weight of the preservaticve before and after each treatment. The temperature of the preservative both before and after the treatment was also noted and recorded. In addition holes were bored into different parts of the treated portions of the poles, and the depth to which the preservative penetrated was closely observed.

Open-tank treatment.—Creosote was poured into the tank until the poles were covered for a distance of about eight feet from the butt, and was then heated to a temperature above the boiling point of water. This temperature was maintained until the air in the wood had been expanded and the water in the outer layers vaporized, and both, so far as possible, driven out. . . . The preservative was then allowed to cool thus producing a partial vacuum by the contraction of the air and the condensation of the steam remaining in the wood. The poles remained in the cooling liquid while the preservative, under atmospheric pressure, was forced into the wood. The entire time consumed by each treatment was about 24 hours, during which the temperature of the preservative was above the boiling point of water for eight or nine hours.

. . . Each pole was weighed before being put into the tank and again immediately upon being taken out. In this manner the amount of preservative absorbed was determined. No account could be taken of the amount of moisture driven out of the wood during the time the preservative was heated above the boiling point of water, and therefore the amount actually absorbed may be slightly greater than appeared from the weights. However, since the seasoned poles were practically air dry the determinations are probably very nearly correct. In the case of the green poles, on the other hand, it is probable, that the actual absorption was considerably greater than that shown.

The preservatives used, method of application, and absorption secured are given in Table No. 1.

Placement in Line.

Six hundred and thirteen treated poles, together with 551 untreated seasoned and green poles, were placed during August and September, 1905, in the line of the American Telephone & Telegraph Co., between Warren, Pa., and Buffalo, N. Y. This line extends at times along roadsides, and at others through cultivated fields, woodlots, and meadows, giving a variety of soil conditions. Table No. 2 shows the plan for setting the poles. The series was repeated 24 times, series No. 2 beginning with pole No. 35 and series No. 3 with pole No. 69, etc. Owing to difficulties in delivery of the poles along the line, about 30 per cent. were set with no definite plan. The number of poles of each kind is given in Table No. 3.

No. of pole.	Condition when set.	Preservative used, sold as—	Method of treatment.
1	Seasoned	Avenarius carbolineum	Brush.
2	do		Untreated.
3	do	Avenarius carbolineum	Brush.
4	Green		Untreated.
5	Seasoned	S. P. F. carbolineum	Brush.
6	do		Untreated.
7	do	S. P. F. carbolineum	Brush.
8	Green		Untreated.
9	Seasoned	Coal-tar creosote	Brush.
10	do		Untreated.
11	do	Coal-tar creosote	Brush.
12	Green		Untreated.
13	Seasoned	Coal-tar creosote	Open-tank.
14	do		Untreated.
15	do	Coal-tar creosote	Open-tank.
16	Green		Untreated.
17	Seasoned	Wood creosote	Brush.
18	do		Untreated.
19	do	Wood creosote	Brush.
20	Green		Untreated.
21	Seasoned	Coal-tar creosote	Open-tank.
22	do		Untreated.
23	do	Coal-tar creosote	Open-tank.
24	Green		Untreated.
25	Seasoned	Creolin	Brush.
26	do		Untreated.
27	do	Creolin	Brush.
28	Green		Untreated.
29	Seasoned	Coal tar	Brush.
30	do		Untreated.
31	do	Coal tar	Brush.
32	Green		Untreated.
33	do	Coal-tar creosote	Open-tank.
34	Seasoned		Untreated.

Table No. 2. Plan of Setting Poles in Warren-Buffalo Line.

Five years after placement the poles were inspected by rep-

[1] It is believed at the present time that more satisfactory results will be secured by treating the entire butt to a height of from one to two feet above the ground line.

resentatives of the American Telephone & Telegraph Co., the Bureau of Entomology, and the Forest Service. The method of inspection was as follows:

After the soil was removed from the base of each pole to a depth of from six inches to one foot, the circumference was measured at or close to the ground line. Since this measurement was made to determine the original circumference of the pole, which unfortunately had not been measured when the poles were set, the proper point at which to take the measurement was carefully selected. If loss by decay impaired the accuracy of the measurement, proper allowance was made in the figures recorded.

After the first measurement the pole was carefully examined with hatchet and prod for decay or insect injury. Decayed portions of the poles, if of any extent, were removed with the hatchet and a second measurement of circumference was then made at the point of greatest decay. This was usually found to be at or near the point selected for the first measurement. Poles which appeared to be unaffected by decay but which rang hollow when struck with a hatchet, were bored to determine how far decay had actually progressed. After inspection creosoted plugs were driven into the holes and the soil which had been removed from about the poles, was replaced.

Computation of Data.

The per cent. of each class of poles affected with decay at or near the ground line and the average loss of circumference at that point were computed. In most cases the latter could be determined by averaging for all poles in the class, the differences between the two circumference measurements for each pole. Often, however, the extent and position of the decayed area were such that the two measurements showed no appreciable difference. In other cases decay in the treated zone was confined to cant hook or other mechanical scars. For a fair comparison, therefore, it was necessary to make allowance for such conditions, and the following procedure was carried out:

Condition when set.	Description of poles.			Condition of poles at or near ground line.		
	Preservative used, sold as—	Method of treatment.	Number of poles.	Affected with decay.		Average loss in circumference at ground line.
				Number.	*Per cent.*	*Inches.*
Green		Untreated	194	194	100.0	1.16
Seasoned		do	357	355	99.4	1.01
Do	Coal tar	Brush—1 coat	48	47	98.0	.95
Do	Creolin	do	16	16	100.0	.89
Do	do	Brush—2 coats	63	44	69.8	.42
Do	Wood creosote	Brush—1 coat	21	20	95.2	.43
Do	do	Brush—2 coats	49	12	24.0	.06
Do	S. P. F. carbolineum	Brush—1 coat	10	3	30.0	.10
Do	do	Brush—2 coats	67	9	13.4	.04
Do	Avenarius carbolineum	Brush—1 coat	8	2	25.0	.27
Do	do	Brush—2 coats	66	9	13.6	.04
Do	Coal-tar creosote	do	83	12	14.5	.02
Green	do	Open tank	29	0	.0	.0
Seasoned	do	do	153	1	.65	Negligible.

Table No. 3. Condition of Poles after Five Years' Service.

1. Where decay at or near the ground line was so situated that the measurements of circumference with and without the decayed portions showed little or no difference, an appropriate loss of circumference was assumed. This assumed loss was determined by the amount and situation of the decay according to tables of the American Telephone & Telegraph Co.

2. For every pole showing signs of decay at the ground line, a loss of circumference of one-eighth inch or more was recorded.

3. In one set of computations those poles which showed decay due only to mechanical injury were considered as sound. The results, however, were so similar to those obtained when all poles which showed decay at the ground line were considered that only the latter ones are given.

Condition of Experimental Poles.

Table No. 3 gives, for each class of poles, the per cent. affected with decay and the average loss in circumference at the ground line. Fig. No. 1 presents the same data in graphic form. For a proper valuation of these results the following points should be noted:

The comparatively small number of poles treated with only one coat of some of the preservatives, renders the results in their case less conclusive than where two coats were used.

Analyses made by the American Telephone & Telegraph Co.

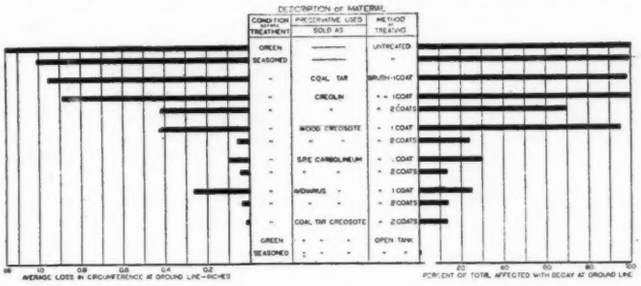


Fig. 1. Condition of Poles after Five Years, Shown Graphically.

of two samples of creolin showed a water content, respectively, of 20 and 90 per cent. So great a variation in composition must detract, of course, from the value of the test so far as this preservative is concerned.

Aside from decay at the ground line, the condition of the experimental poles at the time of inspection was good. Many were slightly affected with sap rot in portions not influenced by soil moisture, and from some the outer fibers were peeling off. These trivial defects, however, were not influenced by the preservative. Decay in the treated zone rarely extended more than six inches above the ground line. Occasionally some was found in hollow knots above this point. Poles thus affected, however, are not included among those classed as showing decay.

The results from the Poughkeepsie-Newton Square experimental line are not as conclusive as those from the one just described. Only 72 poles were placed and records showing the details of their preparation and treatment are not available. Table No. 4 gives the number of poles of each class and their average loss of circumference at the ground line. Figure No. 2 shows the same data in graphic form.

The poles were inspected in July, 1910, approximately eight years after placement. In general the method of inspection was the same as that for the Warren-Buffalo line, except that the decayed portions near the ground line were first removed, after which three circumference measurements were made, one 5 feet above the ground line, one 6 inches above, and one 6 inches below. To compute the average loss in circumference at the ground line, the average taper per linear foot was obtained by dividing the difference between the circumference five feet above the ground line and that six inches above by 4.5, and the result added to the difference between the circumference six inches above the ground line and that six inches below.

Total number of poles.	Preservative used, sold as—	Method of treating.	Character of ground in which set.	Average loss in circumference at ground line.
				Inches.
10		Untreated	Sand	2.27
28		do	Sandy loam	1.87
8		do	Crushed stone	1.77
11	Spirittine	Brush	Sandy loam	1.68
10	Avenarius carbolineum	do	do	1.63
5		Charred	do	0.71

Fig. 2. Poles of Poughkeepsie-Newton Square Line after Eight Years.

Summary of Inspection Results of Warren-Buffalo Line.

1. Both the green and seasoned poles butt-treated with coal tar creosote by the open tank process showed practically no decay at or near the ground line.

2. The poles brush treated with two coats of coal tar creo-

sote, and preservatives sold as Avenarius carbolineum, S. P. F. carbolineum, and wood creosote, showed but little difference in the extent of decay. Their average loss of circumference was 0.02, 0.04, 0.04, and 0.06 inch, and the per cent. affected with decay 14.5, 13.6, 13.4, and 24.0, respectively. The condition of

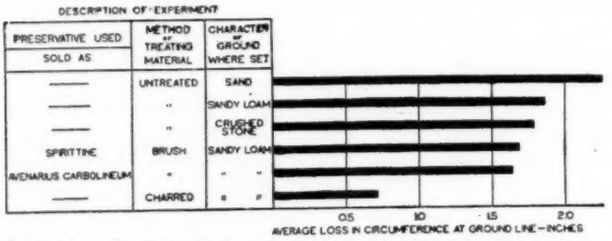


Table No. 4 Pole Data of Poughkeepsie-Newton Square Line, After Eight Years' Service.

these poles was next best to that of those treated with coal tar creosote in the open tank.

3. The poles brush treated respectively with one coat of preservatives sold as S. P. F. carbolineum and Avenarius carbolineum, showed a much greater loss of circumference at the ground line than those treated with two coats of these preservatives. The average losses of circumference were 0.10 inch and 0.27 inch, and the per cent. affected with decay 30 and 25, respectively.

4. The poles brush treated with two coats of preservative sold as creolin and those similarly treated with one coat of preservative sold as wood creosote showed but slight difference in loss of circumference at the ground line, the average loss being 0.42 and 0.43 inch, and the per cent. affected with decay 69.8 and 95.2, respectively.

5. The poles brush treated, respectively, with one coat of preservatives sold as creolin and coal tar, showed a loss of circumference at the ground line of 0.89 and 0.95 inch, and a per cent. affected with decay of 100 and 98, respectively. The loss with these poles was nearly as great as with the untreated.

6. The untreated poles were practically all more or less affected with decay at the ground line, the average loss of circumference for those seasoned prior to placement being 1.01 inches, and for those placed green 1.16 inches. That two of those seasoned prior to placement showed no decay at or near the ground line is possibly due to the fact that they were both set on a hillside or slope where the drainage was excellent. One of them was set in broken stone and rock.

7. A reference in Bureau of Entomology, bulletin 94 to insect damage to poles in this line is as follows:

All these treatments, except the brush treatments with creolin and tar, were efficient in preventing the attacks of wood boring insects, at least for a five-year period, in this northern climate. There was but little damage by insects to the poles in this test line. The most common injury to the untreated poles was by the large black carpenter ants which widen the longitudinal weathering checks, and hence induce more rapid decay loss of circumference at that point being 1.77 inches and found in several poles, and this bettle was evidently just beginning to attack these poles.

POLES IN POUGHKEEPSIE-NEWTON SQUARE LINE.

1. The untreated poles set in crushed stone showed less decay at the ground line than similar poles set in sand, the average loss of circumference at that point being 1.77 inches and 2.27 inches, respectively.

2. The poles with charred butts showed less decay at the ground line than similar uncharred and untreated poles set in either crushed stone or sand, their average loss in circumference at the ground being only 0.71 inch.

A. I. E. E. Affairs.

At the October meeting of the board of directors of the American Institute of Electrical Engineers in New York the report of the finance committee submitting the budget covering the proposed expenditures for the coming year, amounting to $114,307.34, for the various activities of the Institute during the appropriation year beginning Oct. 1, 1912, was adopted. Upon the recommendation of the sections committee, authority was granted to organize branches of the Institute at Highland Park College, Des Moines, Ia., and the University of Oklahoma.

A by-law recommended by the sections committee relating to the expenses of meetings of Institute sections was adopted. This by-law provides that the appropriation of Institute funds during any fiscal year for the meeting expenses of any section shall not exceed a sum determined as follows: (a) Fifty dollars for each section independently of the number of members in the section. (b) One dollar and twenty-five cents for each Institute member residing within the territory of the section at the beginning of the administrative year, Aug. 1.

The following by-law recommended by the meetings and papers committee was adopted:

"The manuscripts of any papers to be presented at the Institute meetings or conventions after the date of Feb. 1, 1913, must be received at Institute headquarters for the consideration of the meetings and papers committee not less than 60 days before the date of presentation, and no papers shall be announced for presentation at any specific meeting of the Institute until after the paper has been accepted for presentation by that committee.

The executive committee, however, shall have the power to waive the 60-day requirement upon the request of the chairman of the meetings and papers committee."

Upon the recommendation of the meetings and papers committee, it was resolved that it shall be the duty of the meetings and papers committee of any one year to arrange for a sufficient number of papers for presentation at the first two meetings of the year succeeding that for which the committee was appointed and to turn over such papers for the use of the succeeding committee.

Upon the invitation of the executive committee of the American Mining Congress, President Mershon was authorized to appoint two delegates to represent the Institute at the fifteenth annual session of the Congress at Spokane, Wash., Nov. 25 to 28, 1912.

The badge committee, which had been appointed to recommend the forms of badge to be used for the three grades of Institute membership which were established last June in place of the two grades formerly existing, reported and recommended that the present forms of badges for associates and members remain unchanged, and that the form of badge for the grade of fellow shall be of the same size and shape as the member's badge and identical in design, including the lettering, the only difference being that the fellow's badge shall be the reverse of the member's badge in color—namely, shall be blue lettering on a gold background. The recommendations were adopted.

Long Distance Telephony in Europe.

It is expected that the direct telephone line between Germany and Italy, via Switzerland, will be opened for service in the near future, says the Electrical Review, of London. Owing to the great distance, the size of wire chosen is 4½ mm., but the charges for use are comparatively low.

The transit line from frontier to frontier in Switzerland has been carried out by the Swiss telegraph authorities at their own expense, and Switzerland will levy a charge of 2 fr. for each conversation of three minutes. On the other hand, Germany and Italy will each make a charge of from 1 fr. to 2 fr., according to the zone in which the town is situated, whence it is desired to speak. During the night the charges will be reduced to three-fifths of those stated, and monthly subscriptions at half rates will be accepted.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities, and Actions of City Councils Bearing Upon Franchises, Rates and Service

The San Francisco Action for Dissolution of Companies.

Arguments on the demurrer of the Pacific Telephone & Telegraph Co. to the action of the city officials of San Francisco for the dissolution of its consolidation with the Home Telephone Co., have been heard by Judge John F. Ellison of Tehama County in extra sessions No. 1, of the superior court. Thomas E. Haven, on behalf of the city, argued at great length in an attempt to establish the doctrine that the franchise and the physical property of the Home concern are a single and inseparable legal entity, which can not at this time be separated. Calling attention to another provision of the Home company's franchise, Mr. Haven declared that the attempted merger between the two concerns was an attempted evasion of the city's right to collect 2 per cent. of the Home company's net receipts.

Attorney Thomas replied on behalf of the Pacific company that he could see no legal obstacle in the way of the sale of the Home's physical assets. What he thought would be legally impossible would be the separation of the company's tangible property from the use of that property. The Anglo-California Bank, trustee for the bondholders of the Home company, was represented by counsel. The case was submitted, with 30 days within which to file briefs and authorities.

California Commission Orders Exchange Area Extended.

The California Railroad Commission has rendered a decision in the case of the San Leandro (Cal.) Chamber of Commerce against the Pacific Telephone & Telegraph Co. It was alleged that the company included the Broadmoor tract of San Leandro in its Oakland exchange area and that the rest of San Leandro has been excluded and was required to pay a toll rate for messages into Oakland, Berkeley and Alameda.

The commission held that the Chamber of Commerce was justified in its complaint and that the conditions should be remedied. The telephone company was ordered to extend to the entire city of San Leandro the superior service and lower rates given to the Broadmoor tract, and ordered the Oakland exchange area extended to include all of San Leandro. The decision also ordered the installation of an improved equipment at San Leandro. The order is made effective three months from its date.

Final Decree Issued in Pomona, Cal., Case.

The final decree in favor of the city of Pomona, Cal., in the suit of the Sunset Telephone & Telegraph Co. against the municipality has been signed by Federal Judge Wellborn. The suit decided in favor of the city of Pomona several months ago involved the right of a municipality to regulate corporations operating within its confines. Judge Wellborn heard the case originally. He favored the city of Pomona. The Sunset company carried the matter to the U. S. Circuit Court of Appeals, where Judge Wellborn was reversed.

The city of Pomona then carried the litigation still higher and the U. S. Supreme Court in a decision rendered last April affirmed Judge Wellborn's ruling. The suit was of interest to all municipalities, and during its trial the court was packed with attorneys interested in the legal questions involved. The Sunset company was operating in Pomona without a franchise, and upon its refusal to secure such a license, the city superintendent of streets was ordered by the councilmen to cut down the poles of the company. This action was stopped five days later by injunction proceedings. The case then tried out in the courts. Judge Wellborn received the mandate of the higher court to issue the final decree and allow the appellant costs of $826.92.

New Baltimore Rates Show 20 Per Cent. Reduction.

New telephone rates in Baltimore, Md., based on the new contracts made prior to October 1, will result in a saving of $134,475 a year to patrons, according to a report made to the public service commission last week by Chief Engineer Charles H. Phelps, Jr. Mr. Phelps bases his estimate on the rates formerly charged by the Chesapeake & Potomac Telephone Co.

Ever since the commission announced its decision in the telephone rate case the company has been making new contracts, with the result that nearly all this work has been completed.

Mr. Phelps gives the figures of the saving to subscribers as follows:

On 6105 message rate stations	$ 99,945
On schedules C and F	11,628
Residence stations on two-party lines	22,902
Total	$134,475

This, he says, shows an average reduction of more than 20 per cent., as compared with the rates previously in force, and this saving is distributed among the 11,860 stations of the company served by the Baltimore city exchanges.

Maryland Commission Settling Flat Rate Problems.

Secretary Louis M. Duvall, of the public service commission, stated recently that the differences between the Chesapeake & Potomac Telephone Co. and its subscribers regarding the old flat rate service seem in the way of amicable settlement.

Numerous other complaints against the telephone company, coming from the counties as well as from the city, also are in process of adjustment.

The flat rate problem promised at one time to become one of extreme difficulty. Under the order of the public service commission of last January, flat-rate contracts for business subscribers were to be abrogated not later than October 1 and a measured service substituted.

All but about 400 of the flat rate subscribers accepted new contracts from the telephone company after the commission passed a supplemental order last spring clarifying some of the schedules, the meaning of which was in doubt, and sustaining the contentions of subscribers. Others of the flat rate subscribers objected to the flat rate service, banded themselves into a protective association and petitioned the commission to extend the enforcement of the substitution of the measured service until April of next year, promising to file data in support of the flat rate service by January.

Late in September the commission granted this petition, giving the company 60 days to accept the modification of the original order or to appeal and providing that those of the old flat rate subscribers who had made contracts for the new measured service should be continued on the old contracts until April, unless they had changed the character of their service by installing new equipment.

The company protested against the extension until April on

the ground that it would be a discrimination in favor of the flat rate subscribers who had refused to take the measured service and against those who accepted, and for a time it seemed probable a controversy would ensue. Since then, however, it has indicated to the commission that it will abide by the modification in view of the commission's assumption of the task of adjusting charges for those subscribers who have put in additional equipment pending final settlement of the question in April.

Other questions between the company and the subscribers about mileage charges, the adoption of new zones in Baltimore county and the substitution of new regulations in other counties where the Chesapeake & Potomac company is taking over the old local enterprises are all in the way of solution in the near future.

Secretary Duvall is gathering data upon the mileage question and hopes to be able to make a report to the commission at an early date.

Bell Claims Irrevocable Grant in Denver.

The Mountain States Telephone & Telegraph Co., in an answer filed in the district court to the quo warranto proceedings recently brought by Omar E. Garwood, attorney for Clinton Wilson, claims a "perpetual and irrevocable right" to the use of the streets and alleys of Denver, Colo.

Its claim is based on an ordinance passed by the city council in 1879, granting to F. O. Vaille, as representative of the Bell Telephone Co., of Massachusetts, permission to erect poles and string wires in the streets and alleys.

The assertion is made that as the city "slept on its rights" and for more than thirty years permitted the telephone company to use the streets and alleys without protest, the permit given in 1879 automatically becomes perpetual, and the city is "forever barred from asserting any further rights," to quote the court papers.

The assertion is made that the company has spent nearly four millions in the installation of the present plant, and that if the city were to oust it from the streets the company would suffer an actual cash loss of $3,200,000.

A history is given of the merging of the various companies from the date of the first merger to the last consolidation, when a number of companies were merged into the Mountain States company. It is set forth that the city at different times compelled the company to place its wires underground, designated places for erection of poles for conduits and for distributing towers "thereby recognizing the company's rights."

Mr. Garwood has presented the matter to Mayor Arnold and the city will become a party to the suit by filing a petition in intervention. One of the claims is that, in transferring the "rights," the telephone company automatically forfeited whatever rights it might have had.

"We are prepared to take this case through the highest courts of the land," said Mr. Garwood in an interview. "We are confident of winning. Neither law nor public sentiment favors perpetual, irrevocable franchise grants."

More as to the Vermontville, Michigan, Case.

As recently briefly noted in TELEPHONY, the Vermontville (Mich.) Independent Telephone Co. has brought suit in the Eaton circuit court against the Michigan Railroad Commission, asking that the order refusing it the right to establish and operate a telephone exchange in Eaton and Barry counties, issued by the board, be set aside and the commission be compelled to issue a certificate giving the company the right to operate.

The company was organized at Vermontville last January under the public acts of Michigan. On January 31 it was granted authority to issue its capital stock, $25,000, by the commission.

Of the stock $10,000 was sold, and on February 27 the company filed the required application showing the purposes for which the funds from the sale of the stock were to be expended. On August 29 the Railroad Commission denied this petition, refusing to give a certificate as requested. The reasons given were that the Citizens Telephone Co., of Grand Rapids, was already in operation in that territory, and that a new company would cause an unnecessary duplication.

The following are the officers and directors of the Vermontville company: James M. Andrews, president; John C. Downing, secretary; Charles J. Warner, Hollis Y. Patterson, Albert F. Tubbs, John F. Curtis, Cyrus Gehman, O. E. Fowers and Burr Slentz.

Owosso Merchants File Protest.

The Michigan State Railroad Commission has just received a copy of resolutions adopted by the Owosso Improvement Association and forwarded to the commission by Secretary Seegmiller, in which a protest is made against what is termed the exorbitant rates charged to Owosso patrons by the Michigan State Telephone Co. It is contended in the resolutions that local merchants are being charged three different rates of telephone rental—$18, $24 and $30 a year. The resolutions ask the commission to establish a uniform rate.

The Owosso merchants have expressed themselves as believing this rate will be a straight $30 a year. If such rate is established, it is declared that all have agreed to take out the Bell telephones and give all their telephone business to the Union Telephone Co. (Independent), which has the greater number of subscribers.

City to Aid Private Action Against Bell.

The Syracuse, N. Y., common council has passed ordinances authorizing Corporation Counsel Magee's assistants to aid him in the preparation and trial of a test case brought against the New York Telephone Co. by Dr. Dwight H. Murray, and also providing, as Mr. Magee requested, that necessary expenditures for disbursements be made and that the same be charged against the law department of the city.

The council also, as requested by Mr. Magee in his statement, provided that hereafter when the telephone company asks permission to excavate in the streets, the individual requests shall be investigated by the highway committee before being granted by the superintendent of public works. Permits that shall be granted shall be on the express understanding that they are not for the purpose of aiding the company to enjoy in the streets any of the privileges granted in the franchise to the Independent telephone company, which the Bell Telephone company, recently bought.

Members of the council declared, after the passing of the ordinances, that the service now being given was extremely poor. The Syracuse Herald referred editorially to the matter as follows:

"The report of corporation counsel with regard to the telephone situation in Syracuse and the ordinances enacted by the common council, are both deserving of public approval as an indication that the city government intends to protect to the fullest the rights and interests of its people in the controversy with the telephone monopoly.

In this matter the people of Syracuse are prepared to give the New York Telephone Co. a square deal, but they insist on a square deal for themselves from the company. The exact legal status of the company with regard to its freedom to increase rates ad libitum is still to be determined; and the sooner it is determined the better. It remains to be seen, in this case, whether municipal franchises are dead letters. That is what the city government proposes to find out, and in this undertaking public sentiment will loyally sustain it."

New Jersey to Guard Against Forest Fires.

The state of New Jersey has built a telephone line from Trenton to the heart of the forest in Burlington county in order to enable the state forestry department to get immediately in touch with any forest fires. The installation of the line is part of a co-operative plan between the state authorities and local property owners for protection against forest fires.

Telephone Co. May Have to Give Back $60,000.

Asking the return of the $60,000 collected from telephone subscribers since June 1, 1909, James Twyford ex-city attorney of Oklahoma City, Okla. has brought suit against the Pioneer Telephone & Telegraph Co. The Pioneer company raised the rates in 1909, with the consent of the city council, but over the protest of the city attorney. He appealed the case to the corporation commission on the grounds that the company could not legally make the raise under the charter.

The corporation commission sustained the city attorney, and the company appealed to the supreme court. That body sustained the corporation commission and Twyford. Now on behalf of the patrons he is asking the corporation commission to enforce the decision of the supreme court.

Oklahoma Town Asks Exchange.

Citizens of Hamilton, Okla., have filed a complaint with the State Corporation Commission in which they ask that the Pioneer Telephone Co. be required to install an exchange, which the people of Hamilton say they are willing to furnish.

The Pioneer company now has a pay station there for long distance messages and all business must be done through the exchange at Okmulgee. Hamilton regards this as discrimination. It is said that there is enough business there to warrant an exchange.

Court Holds Public Utility Must Give Service.

The Minnesota supreme court, in a decision filed last week, holds that a public service corporation must furnish service to any one who asks for it, and who resides within the service corporation, without discrimination.

The case arose in St. Paul, where William H. Mason was refused electric light connections by the Consumers' Power Co. Here it was necessary to cross a street to make the connections. The company held that Mason should make application to the council for the privilege of crossing the street.

The supreme court holds that a public service corporation which has accepted a franchise from a city authorizing it to operate therein is bound by the law to make no unreasonable discrimination between those to whom its service is furnished or is to be furnished.

Asks Uniform Three-Minute Toll Rate.

At a hearing to be held in Sioux Falls, S. D., on November 7, by the state Railroad Commission, telephone rates throughout the state will be investigated preliminary to a readjustment, should such action be deemed necessary. The various telephone companies of the state will be urged to make a three-minute rate.

Telephone Company Wins Suit.

In the mandamus suit brought by Kelly Brothers, implement dealers of Wymore, Nebr., to compel the Gage County Independent Telephone Co., of Blue Springs, Nebr., to install an instrument in their office, the court decided in favor of the defendants. Kelly Brothers are stockholders in the company and recently moved their offices from Blue Springs to Wymore. They requested the company to give them service, but it refused. The court held that the company was not discriminating against them.

The Telephone Arbitration Proceedings in England.

The long vacation of the Railway and Canal Commissioners of England, who are hearing the arbitration case between the National Telephone Co., Ltd., and the British General Post Office to settle upon the purchase price of the telephone system by the government, is over and the proceedings have been resumed. A summary of the progress so far made in the case is given in a late issue of Electrical Engineering.

On February 9th, 1912, the National Telephone Co. made a formal claim, followed by the particulars of claim for £20,924,700, which included all plant purchasable, with some exceptions, and including 1,509 exchanges. The hearing before the commissioners commenced on June 10. The claim is based on the depreciated value of the estimated cost of construction, of the various elements of which a detailed inventory of all plant has been taken by the company, and now agreed by the post office. In addition to the general telephone business, the company claims extra profits on the exchanges at Portsmouth, Brighton, and Hull, where the licenses were unexpired owing to the existence of competing exchanges under municipal control. Special terms are provided for the purchase of the "Private Wire" business. Neither of these items have so far been dealt with.

So far, the age of the various plant items has been agreed, but not the life nor the method of calculating depreciation; for the latter the company claims on a logarithmic law, and the Post Office desires to pay only on a straight line law. In determining the estimated cost of construction, the company takes the cost to itself over a period of 12 years, while the Post Office argues that two years would be sufficient to erect the system and a contractor's price for doing the work now, should be estimated. Since no contractor ever had experience in telephone work of such magnitude, it can call no evidence on this point.

During the vacation a figure of £10,313,765 has been agreed as the "fundamental cost" or the plant cost, including material, freight, labor, and casualty insurance, formerly in dispute, but excluding the cost of ordering and storing material, obtaining rights-of-way, local engineering supervision, district supervision, head office engineering and administration, contractors' profits, cost of raising capital, interest during construction, contingencies, etc, which are still in dispute.

Several other figures were put into court, representing concessions made on both sides to bring the amounts claimed nearer together, and some of them are quoted below:

	Cost of Construction			
	National Telephone Co's. Claim.		Post Office Estimate	
	Original.	Amended.	Original.	Amended.
Underground Plant	£6,177,095	£5,465,657	£3,403,745	£3,657,305
Overhead Plant	£6,975,742	£6,444,362	£4,300,671	£4,534,416
Exchange Equipment .	£2,641,640	£2,552,259	£1,543,013	£1,567,294
Subscribers' Apparatus ..	£3,756,168	£3,670,915	£2,369,730	£2,384,850
Total	£19,550,315	£18,133,193	£11,617,159	£12,143,865

Of these totals the company now claims a depreciated value of £15,871,065, and the Post Office offers £7,334,794. All the above is under heading one of the claim; heading two, including the private wire business, the exchanges of Portsmouth, Brighton, and Hull, and other items, will be dealt with later.

Practical Subjects—Letters and Discussions

Letters from a Retired Lineman to His Nephew.

Podunk Valley Farm.

My Dear Nephew:—

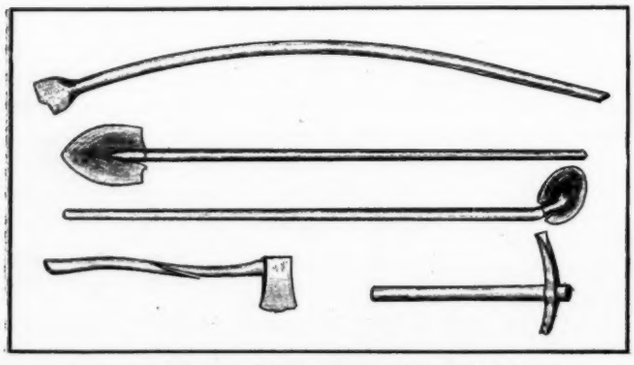
When I read in your last letter that you had started out to become a lineman, I was as much surprised as if you had said you intended going to sea in a prairie schooner, for both are things of the past. To become a lineman nowadays is to become a telephone man. You haven't the same opportunity that I had; ten years' steady work at line building, all in the gold old summer time, by shifting just like the birds, with the season. Times have changed and improved somewhat. We never had a chance to settle down and never had to worry about being laid off, but the latter is about the most important thought to a lineman nowadays.

We didn't consider it genteel to muss around with magnetos, coils, jacks and such stuff. Our jobs were finished at the last pole and begun again at the first pole somewhere else, which was waiting to be set maybe a hundred miles away. But you'll find the difference nowadays is that, after the last pole is set and head guyed, the next pole is still standing on the stump up in the Michigan woods, and that there's a long spell to wait before the lumber jack goes out with his axe and saw to get it.

But nearly always when the last pole is set the company is looking for some fellow to take the job of keeping the new line in working condition. If you keep your eyes and ears open, you can learn enough about instruments to hold down such a job. I remember Soapy Smith was the first fellow in our gang to tumble to the fact that a "rolling stone gathers no moss." I guess it was because he was broke, with a two months' lay-off staring him in the face.

I guess I'll tell you how Soapy came to be called Soapy instead of Jerry, because you will find that to even things up it's best to mix sense with some nonsense. You'll find than salt pork isn't a palatable diet for a dozen consecutive meals; but a few beans or green peas mixed in now and then helps out considerable.

There were 14 of us in the gang when we struck Peachville. The grub hunter had arranged for us to put up at a place, not a real hotel, but a place where they served meals now and then and harbored transients as occasion offered. Fourteen was a pretty large order, but by using all the dishes in the house and some borrowed ones, they managed to give us pretty good treatment. The first night when we had finished supper and filed out past the kitchen, there was a small mountain of dishes piled up on the bench by the cistern. Smith and I were a little behind the others and heard the landlady and her daughter, just a chit of a girl about fifteen, fussing about the dishwashing. We stopped by the pump and listened and pretty soon the girl came out crying and tackled the job. Jerry was a soft hearted cuss. So he stepped right over and offered to wipe dishes for her and soon had her laughing and talking the jolliest kind.



Tools in This Condition Indicate Waste of Energy.

In the morning at breakfast the first mouthful I took tasted of soap. I suspicioned a joke for my personal benefit and said nothing. Pretty soon the landlord sat down and began his breakfast. The storm broke after the first mouthful. He said the breakfast wasn't fit to eat, and asked us if we tasted soap and every man said yes. During the general three cornered hubbub that followed, it came out that the water in which the dishes were washed the night before was too strongly diluted with soap. Jerry had not more than half wiped them, but let them pass. Hence every dish was covered with a thin coating of good old home made lye soap. And that's why we changed Jerry's name to Soapy.

Well, Ben, when they start you out it will be on digging holes. That job isn't as simple as it looks. You can waste an all-fired lot of energy at that job. I always think of a lesson I learned from an old duck hunter who undertook to teach me how to pole a boat through the swamp. I took the long pole in both hands and pushed it down into the mud and sent the boat ahead about six feet so that I could just reach the pole with one hand. Then I tried to pull the pole out of the mud. In doing this I pulled the boat back the whole distance and it took all the strength I had left to get the pole out. I tried it over and made a worse job of it. The old fellow told me that I'd learn after a while, not to push the pole into the mud with both hands and expect to pull it out with one.

The same thing applies to using a digging bar or a pick or a shovel. You can move more dirt and do it easier by pecking away at the bottom of the hole an inch at a time, than by trying to drive the bar down the full depth at one blow and wasting a lot of strength pulling it out again for a fresh start.

Don't shirk on your first job and you are not liable to get in the habit on the next one. When your instructions are to dig a hole five feet deep, put it down so that it won't have to be measured twice.

There is one thing you might as well get into your head right at the start, and that is respect for the rights of the public and property owners. There are some things you are supposed to know without being told. For instance, you might be able to pile the dirt from 20 holes on the sidewalk and compel people to walk in the street in one town, just because you work left handed, and not hear a kick. But in the next town the first one will bring the street commissioner upon you. The foreman will admit he didn't tell you not to do such a thing, but will add that any blank fool would have better sense.

While I am on the subject, I remember that I had a

TO WIRE CHIEFS AND MAINTENANCE MEN.

Clearing of troubles which occur in your exchange, inside or outside, may be made the subject of short, practical letters which will interest other telephone men These* TELEPHONY *will gladly publish, if illustrated by diagrams or photographs. Simply write a description of the nature of the trouble, tests and location, cause found, and method of repair. Payment will be made for all letters published.

rather amusing experience in an Indiana town early in my career as boss of a digging gang. One night we had just finished 15 holes along the main street and covered them with lumber. In the morning the holes were there, but all the dirt had disappeared. It proved out that one of the citizens needed some dirt for grading his lot and had taken a wagon and hauled away all that we had dug out.

I was three days ahead of the pole gang. When they struck that town the foreman sent word ahead that he wanted to see me, but I didn't bother to go back. I knew there was trouble and I let him skirmish around to buy dirt to fill with around the poles.

I can hear a pig squealing, so guess the old sow has laid down on another little one.

Julia and the kids are O. K.

From your uncle,

Dick Slocum.

Advertising the Telephone Through Local Merchants.

Recently one of the Independent telephone companies in Mississippi sent TELEPHONY samples of advertising matter which it has used with local merchants with good results. By use of this class of advertising the telephone company has been brought before the public in a way not previously equalled.

For the purpose of advertising through the merchants, a series of small souvenir blotters was obtained. These blotters were very attractive in appearance, some of them showing the homes of famous men, such as Longfellow, Lowell, Greeley, John Howard Payne, Jackson, Mark Twain, etc. On them was printed the following: "Please note that we are now connected by Automatic Telephone No.—with the system of the Home Telephone Co."

Rubber stamps were made bearing the names and addresses of the merchants and also the telephone numbers. These were used to stamp the proper names, etc. upon the blotters, which were mailed out in envelopes bearing the return card of the merchant. The merchants supplied the company with copies of their mailing lists and the telephone company paid the postage. Something like 2,500 to 3,000 blotters were mailed each month. Other blotters known as "Booster" blotters were used as enclosures in the mail of the telephone company. They were also distributed in public places, such as banks, hotels, etc.

In connection with the efforts of the City Booster Club, booster cards were gotten out. They took the form of tags intended to dangle from the coat lapels, and were used

We Save You on Long Distance Service
66 2/3%
All 5 Minute Conversations over Home Lines are Based at a 3 Minute Rate
If You WILL Use Our Service We WILL Save You Money
PURCHASE
Toll Coupons and Save 10 Per Cent.
Additional to the 66 2-3 per cent which are Good on LONG DISTANCE Lines of
THE HOME TELEPHONE SYSTEM

A Good Illustration of Envelope Advertising.

by the "Boosters" when on their trips. In addition to labeling the person wearing it as a "Booster," attention was called to the automatic telephone service which was said to be "at your fingers' ends."

For advertising in the grocery stores, black rubber cloth aprons bearing an imprint of the automatic desk telephone with appropriate notations, were distributed among the clerks and porters. As the aprons are extremely useful they are worn a great deal. The advertising obtained from the porters was greater than that obtained from the clerks, owing to the fact that the porters wore the aprons in making their deliveries, thereby creating considerable public interest.

The opportunity afforded by moving picture shows was not overlooked. A series of stereopticon views was prepared which showed the automatic telephone in detail and compared it with that of the manual equipment. In return for the theatre running the stereoptican plates, handsomely lithographed fans were supplied to it free of charge for use of the patrons. Upon the back, they bore advertising of the telephone company and also of the moving picture theatre.

The envelopes used by the telephone company bear on their back, advertisements of the long distance telephone service furnished by the company. They call attention to the saving which may be effected by using the Independend company's service. The illustration shows the back of one of the envelopes. As the envelopes pass through many hands before reaching their final destination, they attract considerable attention to the company's service.

The company has several other ideas for advertising with merchants which it expects to put into effect shortly. It advertises in the Southern Farm Home, which has a large circulation in its particular territory. One of its full page advertisements in this paper draws attention to the company's facilities for furnishing good service; views of its various buildings are also shown. In the Saturday morning "Market Page" of one of the local papers, the Home telephone plays a prominent part, being featured at the top of the page as part of the heading. The majority of the stores which advertise on this page have the Home telephone and make prominent mention of that fact.

The company has obtained excellent results from its campaign of advertising and believes that the same methods can be used to advantage by other companies.

Map a Feature of Boston's Electric Show.

Among the exhibits shown at the recent Boston electrical show was that of the New England Telephone & Telegraph Co. A unique part of the exhibit was a toll map of New England upon which all the principal toll centers of the company were indicated by switchboard lamps, together with several of the long-haul toll points outside the New England territory.

The map is six feet square, and made of five-ply soft pine stock. The mechanism is so arranged that any one of 20 or more large toll centers in the company's territory can be made the key city. It is planned to display the map throughout the company's territory, allowing each one of the key cities to keep the map for as long a period as it proves interesting to the public. The lamp representing the key city or point of display remains permanently lighted, the other 109 lamps upon the map lighting in sequence. The toll rates between the two illuminated points appear in a space at the right of the map as each pair of lamps lights.

Telephones in Service in European Cities.

According to recent telephone statistics of European cities published in Engineering, there are in Stockholm 72,000 telephones, or 4.7 inhabitants per instrument; in Copenhagen, 45,000 telephones (11.4); in Christiana, 16,000 (14.2); in Stuttgart, 16,000 (15.5); in Berlin, 122,500 (13.5); in Bern, 4,300 (18.3); in Munich, 27,000 (22.1); in London, 172,000 (26.3); in The Hague, 8,000 (36.1); in Paris, 75,400 (36.6); in Brussels, 16,900 (37.4); in Budapest, 18,600 (39.4); in Vienna, 47,000 (44.4); in St. Petersburg, 30,600 (55); in Rome, 9,500 (60.5); in Lisbon, 3,000 (115); and in Madrid, 3,500 (155).

In the Rural Line Districts

The Hughson Telephone Company, which has already installed thirty-three phones, is now busy extending its line to the rural districts adjacent.—Fresno (Calif.) Republican.

Linemen are here installing the telephone in the depot, for the present telephone will take the place of telegraph along the new line and probably until late this fall.—Bismarck (N. Dak.) Palladium.

The Bell Telephone line had several men working on the lines on Lindell avenue. They put in several new poles and restretched the line on that street.—Hannibal (Mo.) Post.

The new telephone line from Sterling to Peetz will be completed in a few days. They have three men at work framing the poles and expect to have the line in working order in another week.—Peetz Item in Sterling (Colo.) Advocate.

The Bell Telephone and Telegraph Company installed telephones in the homes of Harry Schoener, Charles Troutman, Mahlon Schoener, near Stouchsburg, and Frank Luckenbill, of this place.—Host Item in Reading (Pa.) Eagle.

P. M. Ferguson, manager of the Mankato Citizens' Telephone company, accompanied by his wife, were callers in town Monday afternoon.—Good Thunder (Minn.) Herald.

The Milo Land Co. are now the owners of a large telephone system in Southeast Iowa, having exchanged Canada land for the same.—Milo (Ia.) Motor.

Since the fire at Clearmont, which put part of the telephone system out of business, the company has decided to become up-to-date, and those wires and poles which it is necessary to replace, will be put in the alleys, instead of along the main streets.—Clarinda (Ia.) Herald.

At the regular monthly meeting of the Phone Co. held Monday evening Mrs. Lloyd Harvey was selected to fill the vacancy caused by the resignation of Miss Eunice.—Purdin (Mo.) Enterprise.

The telephone men from Wamego have been working in this neighborhood the past week. Lines nineteen and fifteen are to be divided into four lines.—Vermillion Item in Westmoreland (Kans.) Record.

The work on the new telephone line is well under headway and there is a bunch of men engaged steady setting poles and doing other necessary work.—Lovilia Item in Albia (Ia.) Republican.

Work is going on steadily on the telephone lines. New poles are being put up and new wire strung. Manager Ed Kurtz has quite a force of men at work and before cold weather strikes us the system will be in a No. 1 shape. Mr. Drysdale was up from Charleston Tuesday looking over the work.—Oakland Item in Charleston (Ill.) Courier.

The President of the New Gottland Telephone Co. informs us that at the picnic to be held on the evening of Sept. 25, by Company there will be a program of a varied nature, and that there will also be several kinds of refreshments sold at the usual prices. It should be understood that everyone is welcome.—New Gottland Item in McPherson (Kans.) Republican.

There is a young man connected with the Bell Telephone Co. who is in bad condition with his feet. Suddenly, with no special cause, corns and bunions broke loose all over his motive power. He suffers a good deal and has bandages enough to make a horse blanket over toes and other parts of his locomotion. Passing a dim stairway Sunday afternoon and the anguish being past the endurance point he slipped halfway up stairs and removed his shoes to readjust the cloths and plasters. While absorbed in the operation and experiencing unspeakable relief, he was horrified to see a rival in the same company pass with the sufferer's own special girl friend. That was bad enough but the rival caught sight of him and rubbed it in and added insult to the injury with a pleasant salutation of "Good-night, Bill, going to bed there?"—Wichita (Kans.) Eagle.

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The Telephone Inspector and the Troubleman

The Eighth Installment of a Series of Articles Which Deals in an Elementary Manner With Many of the Problems Encountered in the Operation of Small Exchanges—Staking out a Toll Line—Various Crossings and Difficulties Encountered

By A. E. Dobbs

"Will," said George one morning, "I believe I will give you an opportunity to learn something of practical building. We have a line to build from here to Northville, and I believe I will take you and Tom along and leave Johnston here to look after things. We will survey the toll line that we are going to build to connect with that new long-distance line which will pass through Northville. Mr. Risk has already secured rights of way and the necessary permit from the county commissioners, so that all we have to do is to go ahead and stake out the line.

"We will fill that push cart with stakes we have had cut for the purpose at the planing mill. Take along two hand axes; a No. 10 wire measuring line, 132 feet long, for that is the distance we set our poles apart, as it makes them 40 to the mile; and lunches for all of us, for we are not coming back to dinner. When quitting time comes Mr. Risk will drive out with his wagon and pick us up. You and Tom can take turns at trundling the hand cart."

"What kind of a line are you going to build?" asked Will, as they proceeded to the starting point of the new line.

"Well, the line will, in the main, be built of 25-foot cedar poles with 6-inch tops which must measure not less than 18 inches in circumference at the top and 10 inches in diameter at the butt. We also have some chestnut poles slightly smaller, which is allowable on account of their greater strength. At the present time we will place but one cross arm but we may later have two, one for the toll lines and the other for the farm lines we will pick up along the route, for, if I am not mistaken, every farmer will want a telephone as soon as the line is built. As there is a farmhouse located about every half mile along this route, there will be about 60 or 70 farmers to connect. This will demand about eight circuits, or nearly enough to fill up one cross arm. But we want to string our toll lines first and then work up the farm lines.

"The toll lines on the top arm will be of No. 10 B. & S. copper, which will be transposed just as carefully as though intended to connect with a 1,000-mile line immediately, for as we will have to do so sooner or later, we might as well be prepared for it when it does come. That is the reason we are stringing No. 10 copper instead of No. 9 iron. For this same reason we will have to transpose our farm lines as well when they are built. These lines, running alongside of the toll circuits, will have to be metallic all the way."

"Won't the transposition spacing on the farm lines have to be shorter than that of the toll lines?" asked Tom.

"Not necessarily," answered George; "but if we find the lines noisy, we will cut our sections up into shorter lengths of five poles instead of ten."

Will Goes Surveying.

"Well! Here is the last pole of our town line, and this is the place from which we start. Bring out that measuring line and start from this pole and remember that I want these measurements made as accurately as possible. Stretch the line tightly and if for any reason, we have to lengthen or shorten a section, such as to avoid a farm gate or on account of the intervention of a cross road, we must shorten or lengthen another section, so that our scheme of transposition will not be interfered with.

"In other words, set your stakes without regard to obstacles. Then if we have to move a pole, we will take it out of one or both of the adjoining sections, or if necessary, set an extra pole, so that in general the remainder of the poles will come in proper position. In a farm line it is not important that the poles be evenly spaced, but it is different on toll lines. This road is laid on section lines and in keeping with our agreement, we will have to stay as close to the fence as possible, so that laying out a straight line will be comparatively easy."

"Are you going to drop from those 35-foot poles down to the twenty-fives?" asked Tom.

"No," replied George. "In any case we should start out with a 30-foot pole. As they are selling building lots in this part of town now, we will set our next 15 poles as thirties, so that we will have room for three or four cross arms if we ever have need of them. Will, bring me 15 of those stakes and I will mark them for you. Now you see, each of those stakes is marked 30 and 5, which means 30-foot poles, five feet deep. When the teams come with the poles, the men will know just what size pole to unload. Set the stakes just one foot from the fence so that the diggers will have room to dig all around them. That will line our poles six inches from the fence. Now go ahead Will and set the first stake; you may have that honor."

"Those poles back by the exchange are not set according to your plan," said Tom, while Will was going ahead, "I suppose you will put on two more arms so as to leave the two top arms free for the new lines?"

"Yes," answered George, "those wires will be lowered and some cable hung near the exchange. The transposition sections we will have to find by actual measurement. But you won't find the poles far out of the way. One of them is not more than 10 feet, while the other comes just right."

Three miles from town they came to a railroad track.

A Railroad Crossing.

"Here," said George, "we must have higher poles. The law requires us to clear the rails by 22 feet and it also requires double cross arms on each pole next to the track. Besides, we have to cross over that telegraph line and give it plenty of room. That telegraph line is on 30-foot poles set six feet deep, so that it will take a 35-foot pole to clear it.

"Now let's see. Our bottom cross arm pin is two feet below the top of the pole and the pole should be set six feet in the ground. The top of the rail is two feet above the level of the ground, while we must allow for a sag of one foot on a hot day, making a total of 11 feet to be subtracted from the length of the pole. That leaves 24 feet as the height of the lower pins above the rail, which is two feet more than we actually need."

"But will that clear the telegraph line?" questioned Will.

"Certainly! For the telegraph line is on the same level as ours, which takes off the two feet that I had to allow for the height of the rail. Besides we cross in the middle of the span where the telegraph wires drop a foot at the least, while we have to move our pole out a foot to clear the right of way, so that the sag of our wires when over those of the telegraph company will not be more than two inches. That takes off two feet more so that we will clear them by four or five feet easily. Mark those two stakes '35-6.'"

"In some states," George continued, "the lower wires over a railroad must be at least 25 feet above the rails, and many companies place their toll leads at a distance of 28 feet. As it is quite unlikely that the law requirement in the state will be changed, we are safe in using the 35-foot poles."

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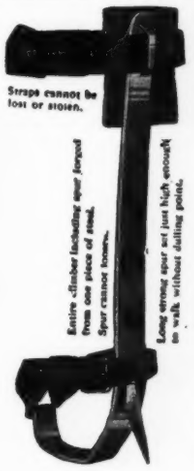
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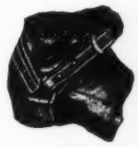

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Leveling the Line.

A mile farther on they came to a small ravine in which two poles were to be placed. George, who had gone ahead while Will and Tom were driving stakes, was waiting for them at this point. "Will," said he, "here is a sketch of this ravine which I have made and I wish you to take it ahead with you as a guide. Between poles Nos. 1 and 3, set your stakes three inches beyond the end of the line. Between poles Nos. 3 and 4, however, set the stakes eight inches beyond your line."

"Why is that?" asked Will.

"To make allowance for the angle caused by one end being tighter than the other."

"But the length of wire——"

"Never mind. Take this lath with you. Fix a piece of white paper to its top and hold it in place until I can sight through. Tom, take these two long laths with you, one of which has paper tied to the top of it. When Will gets ready, come back to stakes No. 2 and No. 3 and give me the height by sliding the laths upon each other."

George had a four-foot lath over which he sighted toward Will, while Tom, obeying signals from George, adjusted his laths until his marker agreed with the other two. Then he laid them on the ground, measured the length, and announced 12 feet from pole No. 3 and eight feet from pole No. 2.

"Deducting the length of the lath makes a net of eight feet for No. 3 and four feet for No. 2," said George, "which might mean 29- and 33-foot poles except for the fact that pole No. 2 should be set a foot deeper, which makes it a 30-footer. As our No. 3 pole is to be located in rather soft ground where water overflows occasionally, it will be set two feet deeper, so that it will be 35 feet in length, and this will make the top of our line level. If it were not for the fact that we have one or two very crooked chestnuts that we cannot use in town, I should not have taken so much trouble with this. We could set two 30-foot poles in there by cuting off pole No. 2 to 28 feet and cutting No. 4 to 23 feet, which, as there is no road crossing there and never will be, would not interfere with anyone in any way.

"Oh, Will!" he called out. "Set up a stake about 10 feet above No. 3 for a slug on the upstream side."

"I see by the marks on the banks," he continued to Tom, "that little two-inch stream sometimes becomes four or five feet deep. By putting a loose slug guy above it, we will hold the pole against washouts in the spring. Of course we do not need to make this guy tight, merely tight enough to keep the pole from pulling out of line when the current washes driftwood against it."

A little farther along they came to a row of trees which extended half a mile and overhung the road. Being a quarter-mile ahead of the other two, George stopped and looked thoughtfully at the line of trees and then across the road where there were no obstacles in the way.

Difficulties in Laying Out the Line.

"Hum!" he mused, taking a paper out of his pocket; "we have the right to trim those trees and thus keep our line straight, but do we want it even at that? As we have to turn north only a quarter of a mile above those trees anyhow, and as the opposite side of the road offers better opportunities for guying, I think we would do well to cross the road. It would not be so bad if those trees were large and fully grown, for then we could cut a couple of feet off the tops of the poles, trim off some of the lower limbs and not have any trouble; but these trees are of an age and size that will make us trouble for the next ten years, just about the life of the pole line."

"Swing across to the other side of the road," he directed the boys as they came up. "Survey this line up the other side of the road as far as the next section line, where the road turns north, and wait for me while I go ahead and see about the right-of-way."

"How about making allowance for the crossing angle?" queried Will.

"Measure 132 feet."

"But crossing the road will leave us several feet short in our regular distance along the road," persisted Will.

"Well what of it, we are measuring wire miles, not suveying land. We set our poles 40 to the mile, but that is miles of wire, no matter how many curves we may have to follow. I am surprised that you have to be told that. Now as to these corners. I want you to set stakes for a slug 25 feet ahead of each pole as well as one at each side. That is the idea which I want you to follow in all work of this kind."

"Why could we not follow this side of the road almost to that first tree and put a guy on that?" asked Will.

"Because the tree is young yet, and is not more than eight inches in diameter at the ground. It would yield to the strain so that the first thing we would know it would be leaning out toward the middle of the road. No, indeed! This is a long-distance line and we must take no chances with slack wires, for we cannot afford to have any trouble which can be prevented. Set the head guy about 20 feet ahead of the measuring line, while the side guy, on account of the fence and the cultivation of the land, cannot be set more than five feet from the pole at the most. Make the same layout for the other side and wait for me at the corner above."

George went ahead, secured the necessary permission from the owner of the land, and returned to the corner at about the same time that the boys reached it. At the same time, as it was getting late, they espied Mr. Risk and Johnston driving out to pick them up. Mr. Risk had brought Johnston along in order that he might have a chance to look over the line before the beginning of the work. As they passed the trees George could see that they were discussing the change of plans in crossing the road and rightly guessed that there would be an argument on hand.

"Do you consider those trees an insurmountable obstacle?" inquired Mr. Risk as he drove up.

"No, there are no insurmountable obstacles in telephone work except deep sea cables," answered George; "but it was, in this case, simply a matter of expediency and cost of maintenance."

"You have laid out four guys to hold the poles where you have crossed the road and they will cost at least $6. I believe that amount of labor would trim those trees."

"You forget that the trees are close to the fence. So close, in fact, that the wire on the middle pin of the cross arm will rub against the tree, while the outside circuit will have to pass to the field side of most of them. Of course side arms can be used, but you will find that the braces alone for those will cost more than $6, to say nothing of the weakening effect on the line. Besides, we would also have to set an extra pole at this corner in order to provide a place to anchor to from across the road."

"So far as the extra pole is concerned," replied Mr. Risk, "that will be balanced by the one we will have to set in front of the house back there, which we would not have had to do if you had not crossed the road. Moreover, this pole at the corner will not be wasted, as I shall probably build a spur line down that south road as soon as those farmers make up their minds that they want our service, as they will within a few weeks."

"Allow me to suggest a compromise," chipped in Johnson. "We all agree that a straight line is a good thing, but we also agree that those trees are very much in our way. Now, could we not move the poles out about four feet from the fence, cut three feet off the tops of them in order to miss the higher branches and trim the trees thoroughly so as to clear our line? I notice that there is at least five feet between the fence and the road ditch. Or, if we have to put our poles next to the fence, we can use side arms."

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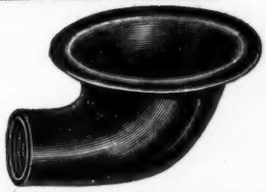

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"Give you credit for that idea, Johnston, I did not think of that," said George. "The idea is not a bad one, but what will the county commissioners say to that arrangement? You know that we do not want to use side arms on the poles if we can help it."

"They want us to keep close to the fence," answered Mr. Risk, "but they do not expect us to do the impossible, and as long as the owner of the land says nothing, they will not. Besides they do not come out in this direction more than about once in two years anyhow. By the way," he continued, "did you get right-of-way for the line across the road?"

"Sure, I did, and got the farmer's contract for a telephone besides."

"I'd like to know how you did it, for when I was along here, he wouldn't listen to me for either rights or a telephone."

"So you figured on crossing the road, too, did you?"

"Yes, I wanted to be ready for whatever we might happen to determine upon."

"But about this last half mile; shall we cross the road or run it straight?"

"Straight," decided the manager.

"Straight," echoed Johnston.

"Well," laughed George, "as I am outvoted, we will set the stakes over again.

"Boys," he called to Will and Tom, "run your push cart back. Pull up the stakes you have set on this side of the road and leave your cart at the farmhouse for the night."

(*To be continued.*)

PRACTICAL TELEPHONY.

(*Continued from page* 687.)

soils, regardless of how carefully the tamping is done.

Often every tenth pole is equipped with a lightning rod, consisting of a piece of the line wire, although No. 8 is better, stapled up the side of the pole opposite the cross arm. It projects about six inches above the top of the pole and ends in a coil buried under the butt. Allowance of about 50 cents per mile should be made for these lightning rods.

Often on single country lines where lightning is unusually severe, the scheme shown in Fig. 14 for "protecting lines against lightning," has been used to advantage. The ground wire is simply bent around until the point nearly touches the line. This is not necessary except in extreme cases.

While a great deal of the foregoing properly belongs to instructions for erection and maintenance work, it is given here to indicate some of the many expenses which must be figured in the initial cost of the telephone system, if it is properly erected. These items are known to the experienced telephone man and, as previously stated, it is always best to employ such a man to lay out and build the system. However, when systems are built by beginners, it is well to remember that, besides the actual cost involved in putting up the line, and the material as usually estimated, there are many other items to be figured in. If these are lost sight of, the capital will be exhausted before the system is complete. Many men who have been in the business a long while, often forget some of these incidental items.

There has been entirely too much building in the past based on the "mile cost" figures. It has been the fashion of some supply house salesmen to talk to prospective purchasers something like this:

"Now to build a mile of line all you will need is 100 lbs. of No. 14 iron wire which will cost you, delivered, five cents per pound, total $5. You will need 30 brackets which cost 30 cents, and 30 insulators that will cost 90 cents. Outside of this, you will only need a couple of nails for each bracket which can be put down at 20 cents for the mile.

"Now you see on this basis, a mile of material with the exception of the poles, will cost only $6.40. Poles, 30 to a mile, certainly would not cost over 50 cents apiece so the total cost of the material will be only $21.40."

Then he will give a lot of figures as to how many miles of line may be built in a day. On this basis the company is organized, the stock paid in and the work begun, only to find out there were a hundred other expenses not provided for, which require additional money. Soon uneasiness and a feeling that the people ahead of the affair "don't know their business," etc., permeates the undertaking.

To the manager who has not had overmuch experience there is a temptation to underestimate. This should be carefully avoided. A week spent in a careful survey and in estimating every possible expense, will pay handsomely and the work will be better and more quickly completed in the end.

By way of example, the question of splicing the wire is seldom figured in either the cost or time. To properly splice, requires a soldering torch and soldering flux. A better plan is to use sleeves which form a good connection without heat. The cost of each splice should be figured at five cents.

(*To be continued.*)

Sudden Rise in Canadian Bell.

Stock of the Bell Telephone Co., of Canada, made a phenomenal rise last month, jumping about thirty points in two weeks. Following is the range of quotations at Toronto:

October 10	147
October 11	149¾
October 12	149¾
October 14	150
October 15	150
October 16	151
October 17	153
October 18	156
October 19	156¾
October 21	162
October 22	167
October 23	175

"I know of no reason whatever to explain the recent advance in Bell telephone stock," said Mr. Sise, president of the company, in an interview at Montreal.

"We are making no extensions to our system, nor are we making a new stock issue, nor in the language of the Street, are we to cut a melon."

No one appears able to explain the underlying causes of the sudden increase.

Telephone Row Averted in Pasadena, California.

Moral suasion brought to bear by business men of Pasadena, Calif., has resulted in an agreement by officials of the Pacific Telephone & Telegraph Co., which controls the Pasadena Home Telephone Co., to issue a separate telephone directory containing only the names and numbers of the Pasadena subscribers. The telephone company has purposed issuing a large directory containing, in addition to the list of Pasadena subscribers, the names and numbers of subscribers in a dozen nearby cities. This large directory did not appeal to the Pasadena subscribers, and considerable agitation resulted. The matter was taken up by various business and civic organizations, and a promise was obtained that a smaller directory would be issued January 1, which will contain only the names and numbers of the Pasadena subscribers.

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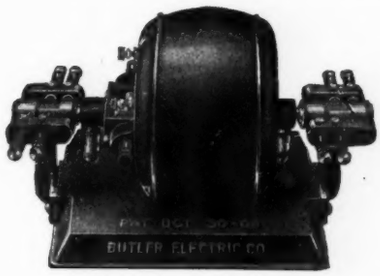

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That's what you get when you use a

Butler Ringing Machine

Built for

Alternating, Pulsating and Harmonic Systems. Installed on Trial.

Send for booklet or write us regarding special equipment

Butler Electric Company
PERRY, IOWA

GET HEMINGRAY GLASS INSULATORS

For Best Transmission

The teats on the petticoat, an exclusive feature of Hemingray Insulators, prevent water running to pins and causing grounds.

Hemingray Insulators are all insulation and are unusually free from breakage.

Write for Prices

Hemingray Glass Co.
Covington, Ky.

Factories: Muncie, Ind.

BROOKFIELD

means

INSULATOR EFFICIENCY

This name is back of more than Two Hundred types of High and Low voltage Insulators.

It is a guarantee of Insulator quality —Service and Fair Prices.

Brookfield Insulators have been Standard for HALF A CENTURY.

Brookfield Glass Co.
2 Rector St. New York
Your dealer can always furnish Brookfield Insulators

Please tell the Advertiser you saw his Announcement in TELEPHONY.

From Factory and Salesroom

A Telephone Fire Alarm System.

The growing importance of fire protection in general, and more particularly the advantages of the Denio system of fire alarms by telephone wires, are impressively set forth in booklets and other attractive new literature which is being issued by The American Telephone Fire Alarm Co. of 1312 Otis Building, Chicago, which is the successor of the Denio General Electric Co.

The Denio system is not the idle fancy of an hour or a dream of visionary genius; but, on the contrary, is a substantial, tangible proposition which has been some years in the making. It has been carefully evolved, its defects eliminated and all desirable features strengthened, until found uniformly satisfactory in permanent telephone work. As an adjunct to telephone service, its importance is twofold. New patronage is attracted and revenues are increased. As a byproduct, it is said to have few equals. In this connection, the experience of well known, practical, telephone men probably will speak more strongly than mere words of praise.

From Michigan comes the following letter, under recent date of June 19, 1912.

Mr. B. B. Clark,
President, Denio General Electric Co.
Rochester, N. Y.

Dear Sir:

Replying to your inquiry as to my idea of the prospect for fire alarm business in this city and in other cities of similar size, would say that I cannot see any reason why it should not be a very popular proposition for any telephone company in any city.

The system was taken on in Alpena something over two years ago as an experiment, both as to efficiency of the apparatus, which was not up to the present standard, as well as to find out how the subscribers would take to the scheme.

We did not make any effort to secure a large number of stations, but easily secured contracts for manual and street boxes.

The manual boxes are distributed among lumber mills, factories, paper mills, tanneries and various manufacturing plants, and the public schools of the city.

We have had eight demonstrations from actual fires and have testimonials from each demonstration as to the efficiency of the apparatus and entire satisfaction of subscriber.

We have never failed to get the alarm to the fire engine houses with record speed, nor have we had any box turn in an alarm unless operated with that intent.

As a byproduct for this company, we are entirely satisfied with the returns, which are equal, per station, with the net from the average telephone station.

We have no trouble collecting rentals, have had none discontinued and scarcely any trouble with the system.

We cannot see any reason why your fire alarm system should not be popular with any telephone company in any location. Respec fully,

H. F. Barbour, Gen'l Mgr. Alpena Mutual Benefit Telephone Co.

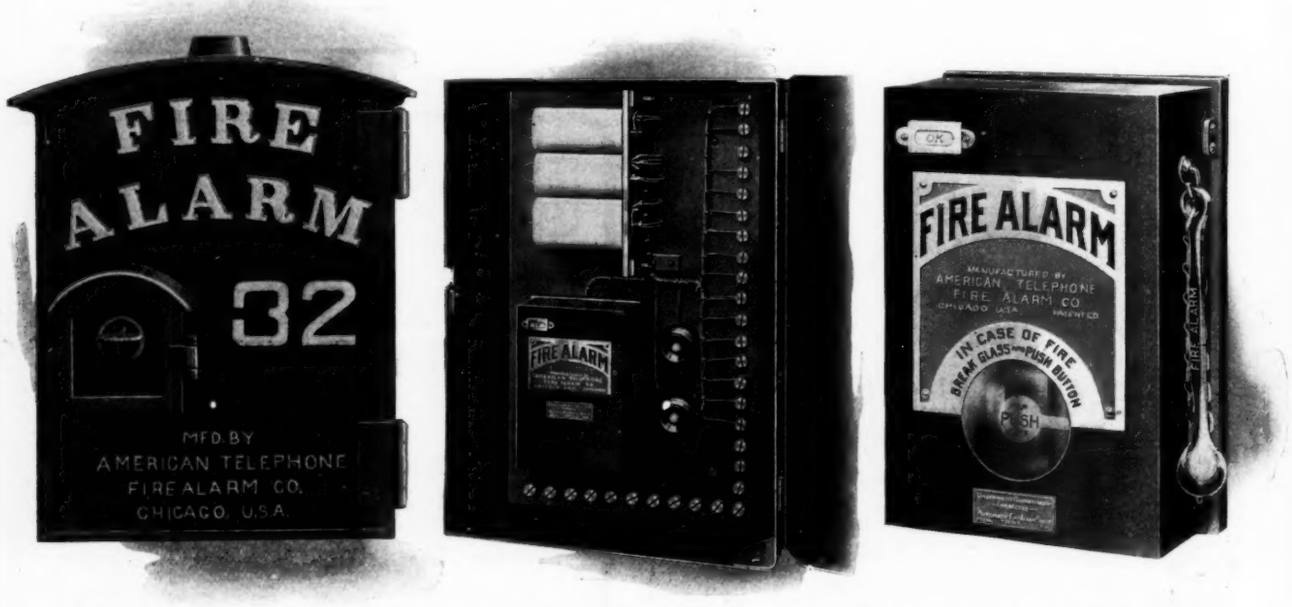
Another well known telephone man, George R. Fuller, president and general manager of the Rochester (N. Y.) Telephone Co., writes regarding the Denio system as follows, under date of August 26, 1912.

"I congratulate you upon the final approval of your apparatus by the laboratory department of the National Board of Underwriters.

This is the result of persistent and tenacious efforts on your part for the past few years, backed by a system, that in my judgment, will become an efficient means of reducing in a large degree the stupendously increasing waste in this country by fire, as shown by statistics from year to year, and furthermore by its adoption by telephone companies because of its becoming a source of additional income from telephone circuits with little or no extra expense.

As you know, I have no financial interest in the installation of your apparatus or the success of your company, and whatever has been done in the adoption and demonstration of the system in connection with our subscribers' lines, and whatever I say now or have said heretofore commending the system, has been because of the fact that I honestly and sincerely believe in its efficiency and its value as a source of legitimately and safely adding in some measure to the net income of operating telephone companies."

It may be further stated here that Mr. Fuller's note of congratulation has a very substantial foundation, as the approval of the Board of Underwriters marked the epoch of arrival from the Denio system. An indorsement by the supreme court of fire insurance companies is an honor not



Street Fire Alarm Box—Master Box and Panel Used Where More than one Station is Needed—Single Station Set.

Underground

CONDUIT SYSTEMS

our specialty

WORK STARTED

AT ANY POINT

WITHIN 48 HOURS

Write us for estimate

G. M. GEST

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Cincinnati **San Francisco**
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C. C. C.=E. B. B.

C. C. C. stands for, among copper clad wire products, what E. B. B. does among iron wires, namely, *the very highest grade.*

Colonial Copper Clad Wire

TRADE C. C. C. MARK

is manufactured exclusively by this company under U. S. Patent No. 580344 dated April 6th, 1897, which antedates any other method now used of manufacturing copper clad wire in the United States.

Write for booklet describing our process.

Standard Underground Cable Co.

Pittsburgh, Pa.

New York Philadelphia Chicago
Boston San Francisco St. Louis

For Canada: Standard Underground Cable Co., of Canada, Ltd., Hamilton, Ont.

We manufacture Electric Wires and Cables of all kinds, all sizes, for all services; also Cable Terminals and Junction Boxes.

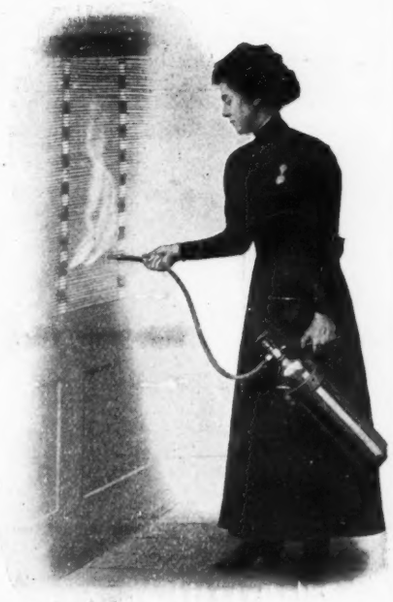
No. 2—28 inches high. 6 lbs. of gas.

IS FIRE PROTECTION WORTH $12.50?

Your switchboards cost $600 to $1,200 a *foot.*
Your exchange *time* is worth several dollars a minute.
A fire will cause a heavy loss of property and a still more costly loss of business.
The *time* to put out a fire is before it gets a real start.
The *way* to put out a fire is with a

Diamond Liquid Carbonic Fire Extinguisher

It is a fire department in a tank—instantly available, and absolutely effective.
It puts out the fire by shutting off the oxygen supply from the air.
Carbonic gas is the gas that soda water is made from. Every soda fountain owner knows that the quickest and best way of killing a fire in his store is to turn a blast of this gas on it from his soda water gas drum, and many stores have been saved by the prompt use of this method.



Girl is holding No. 1 Model

Send to the nearest Liquid Branch for one of these; put to any experimental test your ingenuity can devise, and prove the truth of our statements.

Booklet Free

BUILT BY

"The Liquid" Carbonic Company

JACOB BAUR, Pres. and Treas. CHICAGO New York Boston
Pittsburg Cincinnati Milwaukee Minneapolis
Atlanta St. Louis Kansas City Dallas San Francisco

The Diamond is made in two sizes:

No. 1, 20½ inches high, round bottom. Holds 4 lbs. of Liquid Carbonic Gas. Complete with hose and couplings. F. O. B. Liquid Branches $12.50

No. 2, 28 inches high, flat bottom. Holds 6 lbs. of Liquid Carbonic Gas. Complete, with hose and couplings. F. O. B. Liquid Branches..... 15.00

Refills, at any of the Liquid Carbonic Co.'s branches—

No. 1, each..... .75
No. 2, each..... 1.00

lightly bestowed, and it invariably is indicative of superior merit. In the present instance it is said to presage a very substantial discount in rates wherever the Denio system is installed.

So few readers appreciate the appalling losses which America annually sustains by fire, that they can hardly credit the official figures which show that in 1911 over $225,000,000 of property was destroyed, or more than $25,000 for every hour in the year. Add to this the still more terrible and inestimable loss of life, and it will be seen that the question of proper fire protection is one of prime importance to all.

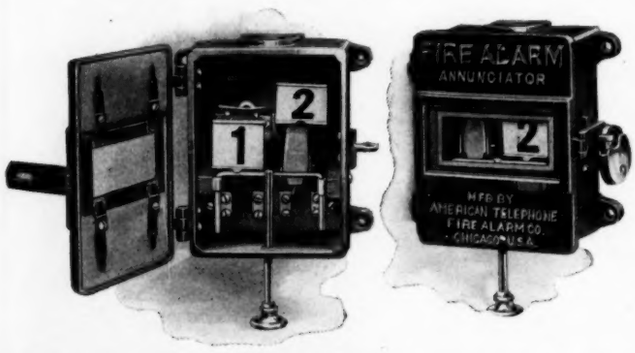
To overcome or reduce this loss to a minimum is a task to which the Denio company, now known as the American Fire Alarm Co., applied itself some years ago. The persistency of its president, B. B. Clark, has overcome almost innumerable obstacles which developed from time to time, and he is at last rewarded with apparatus and opportunities of which great things may be expected. It will be appreciated that the element of time, the problem of getting immediate notice, plays a most important part in the matter of fire alarms.

Heretofore no service has been universally available whereby a fire notification could be accurately transmitted direct from its location to fire headquarters; and because of this fact from 10 to 20 minutes frequently have been lost and the fire allowed to gain insurmountable headway.

The Denio system, which is pronounced the embodiment of simplicity, efficiency and economy, gives direct notification from the place of fire to fire headquarters, and the following claims are made for it:

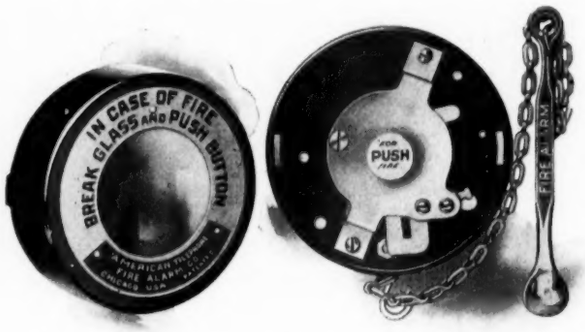
Its notification is instantaneous.
It gives the exact location of a fire.
It is simple of construction and constantly at hand.
It has saved many thousands of dollars and will save millions more.
It is under constant test; hence always reliable.
It works automatically as well as manually.
It will notify the fire department in less than one minute.
It will protect property day or night.
It saves the loss of business, profits and time.
It has been "proved out" and has passed the test of practical experience.
It has the approval of the highest insurance authorities.
It is a perfect success in reducing fire losses.
Its expense is merely nominal.

The Denio system is now made for use with manual, automatic or magneto telephone systems and its operation



Outside Annunciator Indicates Floor from which Alarm is Sent.

in connection with either system is said to be unusually reliable. As a matter of fact, telephone lines afford the most logical of means for fire alarm service, as telephone wires must be maintained in perfect condition. Grounds or loose connections interfere with the transmission of telephone messages and prevent giving good telephone service, so that the telephone company is very keen to keep its circuits in first class order. The apparatus at "Central" is very sensitive to any disturbance on the line and those in charge are promptly notified of any unusual condition, be-



Push Button for Transmitting Alarm in Factories, Schools, etc.

ing thus enabled to remedy it without loss of time. These advantages are very difficult to obtain in any system of wires used for fire alarm purposes exclusively, without making the cost prohibitive.

As a matter of statistics, it will be of interest to telephone men to know that over 60 per cent. at least of all fire alarms are sent in by telephone. The Denio system is designed to relieve telephone wires of this burden while at the same time in no manner interfering with ordinary telephone business as Mr. Fuller, of the Rochester Telephone Co., says: "We would not know that it was on our wires from general practice."

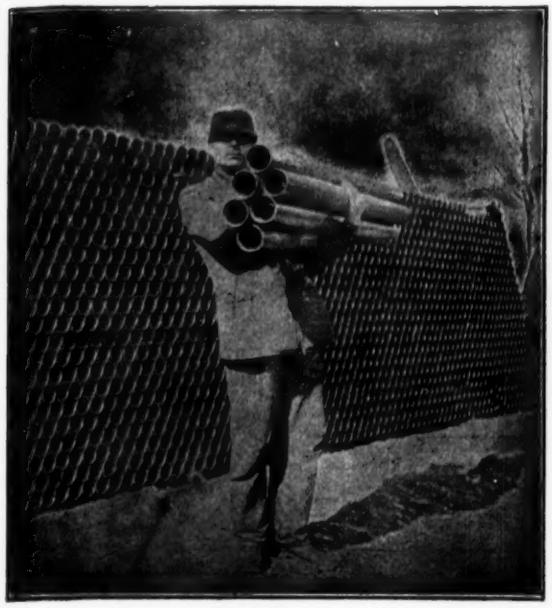
From this brief outline, one may readily judge of the number of strong talking points which the Denio system provides for a telephone company anxious to secure new subscribers, as well as furnish superior facilities for old patrons. As a byproduct, a source of added revenue, it is said to almost equal the telephone itself. These items are serving to attract general attention to the Denio apparatus. To meet this demand the company has prepared a special telephone booklet which is finely illustrated and of exceptionally attractive appearance throughout. This booklet describes the Denio system from a telephone man's viewpoint and is something which every manager will want to read thoroughly.

The American Telephone Fire Alarm Co. has a very handsome and business-like suite of offices on the 13th floor of the new Otis building at Madison and La Salle streets, Chicago, opposite the La Salle Hotel, where it has installed a complete equipment and is demonstrating its apparatus for all classes of telephone service. The company invites every one who is interested to call; or it will send full descriptive literature to those desiring full information regarding the system.

The Oshkosh Manufacturing Co. Busy With Many Orders.

The Oshkosh Mfg. Co., of Oshkosh, Wis., makes an extensive line of construction tools and devices used largely by lumbermen and contractors, as well as by railroads, telegraph and telephone companies. Recently, it adopted "Oshkosh" as a trade mark by which all of the tools made by it in the future can be easily identified. In all of its advertising this company, being a firm believer that advertising pays in trade and technical publications, is featuring the new mark.

Two of its specialties which it is said have made quite a "hit" among telephone men, are the Roberts patent climbers and the Oshkosh folding take-up reel. Usually at this time of the year, it is only natural that there is a little let up in con-



Carrying 30 feet 3-inch socket joint conduit.

Orangeburg Fibre Conduit

("Admitted to be the best Fibre Conduit")

Made in FOUR STYLES OF JOINTS

Socket, Sleeve, Screw and Harrington

WITH BENDS AND FITTINGS FOR SAME

Is the lightest conduit made

and means low freight and cartage costs

Send for The Conduit Book

THE FIBRE CONDUIT COMPANY

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S. B. Condit, Jr., & Co., Boston, Mass.
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MAIN OFFICE AND FACTORY
Orangeburg, New York
McClary-Jemison Machinery Co., Birmingham, Ala.
Tri-Provincial Electrical Supply Co., Winnepeg, Can.

Pierson, Roeding & Co.,
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With each complete accounting system sold we send a book of instructions telling how to open and handle the

"COFFEY SYSTEM"

Write for Particulars.

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COFFEY
Indianapolis, Ind.

HYDE'S
TELEPHONE TROUBLES
and
HOW TO FIND THEM

An up-to-date manual pertaining to Telephone Troubles and their remedies on both magneto and Common Battery Systems—also containes table of ***Cost Units*** for estimate work. The use of all technical terms has been avoided. No telephone man can well afford to be without this handy book—it costs but 25c.

For sale by

TELEPHONY PUBLISHING CO.
MONADNOCK BLOCK — CHICAGO

Patent Pending

"Hy-Po-Stat"

The All Metal and Porcelain Cable Protection
This is the terminal that

"Protects Your Cables"

and makes your investment a permanent one.
For further information ask your jobber, or write

The Royal Electric Company
SIDNEY, OHIO

struction work, but one of the company's officials recently advised a member of TELEPHONY's staff that they could not help being surprised at the excellent volume of business the company is now enjoying. Orders of good size are being daily received and these are accompanied by very encouraging promises and reports for what may be expected during 1913. They are apparently signs of "good times."

Full descriptive literature will be mailed to any telephone company desiring particulars about the "Oshkosh" line of construction specialties.

Ericsson "Social Chat."

"Johnny Terry, who lives and moves and sells Ericsson telephones at Cedar Rapids, Iowa, blew in recently, much to the delight of our eyes. Johnny is such a husky, corn-fed advertisement for Iowa and Ericsson, that it's good for sore eyes to see him—he's that easy to look at. John says he's got so many more friends among his customers now than he had before he handled Ericsson 'phones that he'd rather give up his hunting dogs than our agency—and that's some encomium from Johnny, for he's a regular hunter."

An Indemnity Bond on Tools.

We all know of fidelity bonds, casualty bonds, bail bonds, and other forms of bonds, but it remained for the Smith & Hemenway Co., New York City; Newark, N. J., and Montreal, Canada, the manufacturers of Red Devil tools and hardware specialties to give to the trade and the user of tools a genuine tool bond. An indemnity bond that is good for years.

This bond covers a new Red Devil plier, the No. 1650 Bonded. It is a special steel side cutter that the Smith & Hemenway Co. is now putting on the market. This particular Red Devil plier is similar in design to the company's extra heavy electricians side cutter. It is made of a special quality of tool steel, in a grade of steel that has been under experiment and test for more than two years.

Before placing this new bonded plier on the market, the Smith & Hemenway Co. began experimenting over two years ago with a new grade of tool steel. This steel is made by a secret process and it is said that in its crude bar state it was found to be tougher and harder to work than any tool steel known. The experiments led to an endeavor to drop forge it by the usual method, but this was found an impossibility, a two-ton hammer not being heavy enough to forge a perfect shape. Experiments were continued and various special devices and forging tools made and the drop forging from the bar metal was perfected.

The next obstacle was the milling of the blank forgings. Milling cutters by the score were made, but they were not of sufficient cutting strength to mill the blanks. This was overcome eventually and perfected. The grinding, riveting, tempering processes all had to be newly arranged and adapted to this new grade of steel. A new method of honing the cutting edges had to be developed as well as new methods of testing the strength. All these experiments involved considerable time and expense, but the result was this new Red Devil bonded plier.

It may be mentioned here that these Red Devil bonded pliers have been in use daily for the past 18 months by the linemen of one of the largest electrical corporations in the world. These tools were sent out and subjected to this actual test, and the results watched carefully. It is reported that out of several hundred pairs of these bonded pliers which were used, not one single pair showed a sign of wear or a nick in the cutting edges. The instructions to these linemen from the Smith & Hemenway Co., were:

"Put this plier to any test you want. Use it all the time. Cut every and anything in the wire line with it. We made them especially for hard usage, and we want you to subject them to the hardest usage you can.

We want to make a Red Devil side cutter that we can guarantee absolutely every way for a stated period.

We will make a Red Devil tool that we can put on the market and give the user an indemnity bond. A bond that the tool will 'stand up' and 'make good' for two years. A bond that the user can hold as an insurance so that if the tool should 'fall down,' he has our 'Red Devil' bond that will entitle him to a new pair of these particular Red Devil pliers any time within two years, by simply surrendering the defective tool and this bond (which is enclosed with each pair of these pliers) to us. This obviates the necessity of the user going back on the dealer or the dealer going back on the jobber, or the jobber going back at us. The bond entitles the user to come back to us, first hand. We make this tool and we not only guarantee it, but we bond it, consequently we stand back of the tool and the bond, first, last, and all the time."

The Smith & Hemenway Co. states that it has sent out to its force of traveling salesmen, samples of these new No. 1650 bonded pliers. They are made in all the standard sizes, i. e. 6, 7, 8 and 9 in., and the trade may look for this new tool when the Smith & Hemenway's men make their periodical visits.

H. D. Currier Now a Kellogg Man.

H. D. Currier is another well known telephone man who recently joined the staff of the Kellog Switchboard & Supply Co. He has been in the telephone business since 1897. His first work was in the engineering department of the Chicago Telephone Co., after which he went with the Maryland Telephone & Telegraph Co. He later was connected with the Century Telephone Construction Co. of Cleveland, Ohio.

Mr. Currier's fourth experience was when he took up work with the Western Electric Co., in its installing de-

H. D. Currier.

partment. From there he went to the engineering inspection department and afterwards was placed in charge of laboratory work in Chicago and New York. Engineering work with the Duplex Metals Co. followed after which he returned to the Western Electric Co., being associated with the sales department.

"I love the game", that is the way Mr. Currier typifies his interest and success in the telephone business.

His widest experience has been in the common battery side of the telephone business. For two years he wrote technical descriptions on patent specifications for the Western Electric Co.

He had the good fortune to make some of the first experiments on railway train dispatching circuits wherein the telephone is used and the result of these experiments de-

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NORTHERN POLES WESTERN

We are pioneers in the butt-treatment of poles using Creo-Resinate Wood Preserver. Write us.

THE VALENTINE-CLARK COMPANY
MINNEAPOLIS, MINN.

Western Sales Office: St. Maries, Idaho

NAUGLE

Pole & Tie Co.
5 South Wabash Ave.
Chicago, Illinois

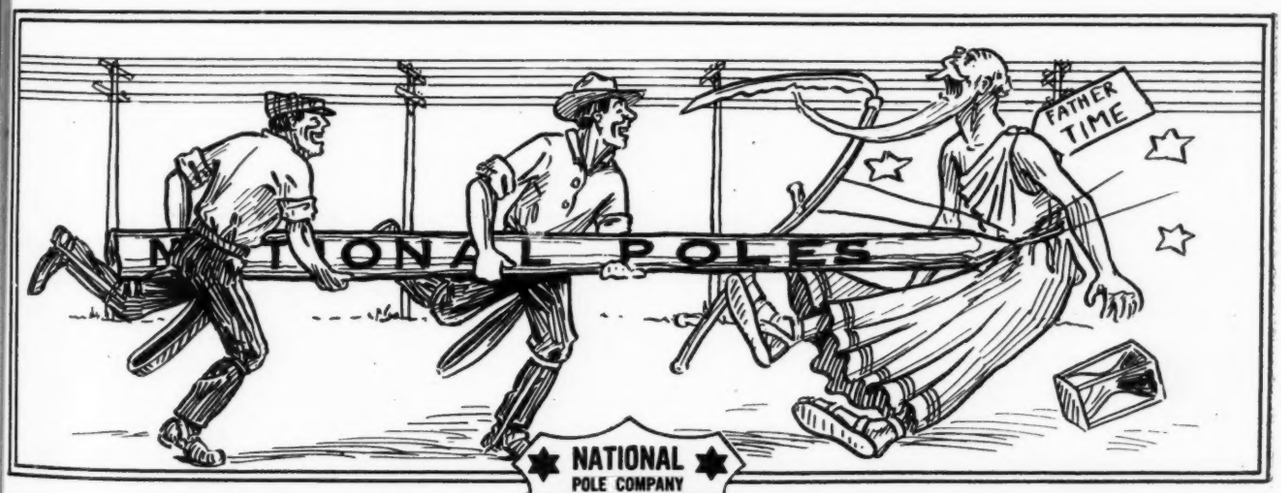
The Trinity in Poles
"Service—
Price—
Quality."

POLES

Cedar

Crawford Poles
are all satisfactory in life, strength and appearance. Price is O. K. Write
Crawford Cedar Co.
Menominee, Mich.

Poles



"FROM THE STUMP TO THE LINE"

NATIONAL POLE COMPANY
ESCANABA, MICH.
CEDAR POLES

Very Few Systems Employ Flimsy Construction any more. The Better the Company, the Better Its Methods. We are Able to Fill the Most Exacting Requirements of the Very Best Companies.

Over fifteen years of experience in WHITE and WESTERN CEDAR POLES
Exceptional Facilities. Yards at the Most Favorable Shipping Points.

National Pole Co., Escanaba, Mich.

Please tell the Advertiser you saw his Announcement in TELEPHONY.

fined the transmission requirements which are in use at the present time. The introduction of a push button to be operated when talking, and released when listening was first installed by him on the Chicago, Burlington & Quincy Railway between Galesburg and Savanna, Ills. It is interesting to note that this arrangement is standard on all railroads at the present time.

Several patents relating to telephone development, have been issued to Mr. Currier. In remarking on the development of the telephone art he pays a tribute to Independent telephony as follows: "Personal experience has proven that real progress in telephony will emanate from the Independent field. There development may take its natural course, unhampered by reels of red tape and personal glory mongers found at every turn in the Bell field."

A New Diamond Drill.

The Diamond Expansion Bolt Co., of New York, has placed on the market a new type of drill which is designed to reproduce the same action in the drilling of holes in stone, brick or cement as is produced with the ordinary hand hammer and drill, with greatly multiplied speed. The hammer's action upon the drill and the drill's action upon the stone is said to be identical with that produced in the old way with the ordinary hammer and steel drill with eight times the rapidity. In other words with every revolution of the crank, eight sharp blows are struck.

It is an acknowledged fact that the best results obtained with the old method of hammer and drill are produced by comparatively light blows, properly timed and struck. The new device known as the Diamond Rapid Fire Drill, was designed on this theory to strike according to the speed with which the crank is rotated, from eight to twenty times the number of blows that are regularly delivered with an ordinary hand hammer. This effects corresponding increase in the rapidity with which holes may be drilled. Its action is percussive and its mechanism is said to be so constructed that practically no vibration or concussion is felt by the operator.

The handles are arranged so as to adapt the drill for use in any position that may be required. By the loosening of a screw underneath the D handle, the handle is allowed to rotate and may be used as a breast plate. This arrangement permits the drill to be rotated in the hole, thus insuring perfect clearance of the drill when in action. When used in this position the forward handle is slowly turned back and forth giving about a one-eighth turn, preventing the drill point from binding.

The drill points are standard being the same as previously furnished with the Diamond drill holder. Points of all sizes are furnished with identical taper shanks so that any size may be used interchangeably. It is claimed that the drill points used in the Diamond Rapid Fire drill will remain sharp considerably longer than the same points held in a drill holder and subjected to blows of a regular stone hammer.

Each Rapid Fire drill has three adjustments, hard, medium and soft which are controlled by a spring lever at the side of the housing. Each adjustment is furnished with two springs of different power, thus allowing six gradations to the force of the blow that can be delivered by the hammer. The springs are easily changed by removing the cover of the housing, without disarranging or unfastening any of the parts of the mechanism.

Holes drilled with this machine are said to have a smooth

Sometimes Vertical Holes Have to be Drilled.

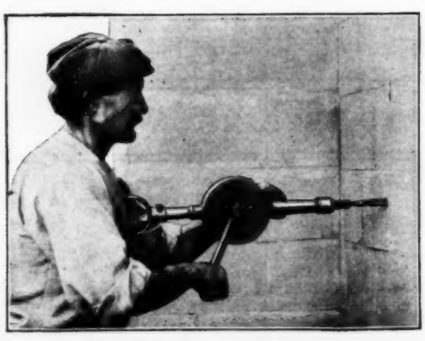
bore and a sharp edge and there is no danger of cracking the wall at the surface.

It is claimed that the saving in time and in the longer service of the drill points will more than pay for the cost of this machine in a short while.

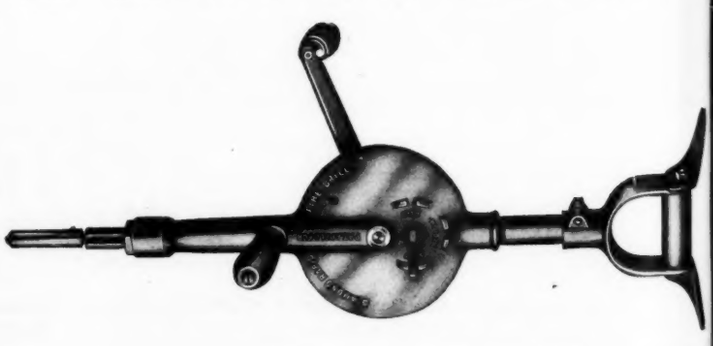
Paragraphs.

THE DUPLEX METALS CO. has transferred W. T. Kyle, its very successful Western sales manager to Eastern territory, with headquarters at 30 Church street, New York, while Carter R. Semple becomes Western representative, with offices in the Peoples' Gas Building, Chicago.

THE L. B. ALLEN CO., INC., of Chicago, announces that the Allen sodering products may now be obtained from the following: Rex Sales Co., 90 West street, New York, Atlantic



Drilling a Horizontal Hole.



The Diamond Rapid Fire Drill.

Coast distributors; Atis & Squires, 579 Howard street, San Francisco, Pacific Coast distributors; and Houston & Co., 357 Henry Ave., Winnepeg, Can., Western Canadian agents.

THE STAR EXPANSION BOLT CO., of New York City, has just issued a pocket size booklet containing illustrations, descriptions and list prices of the various toggles on the market. A copy of this booklet will be sent upon request.

WHITE CEDAR POLES

We handle just the poles for your purposes—the kind that you can depend upon to give service.

We are producers of poles—not jobbers. Consequently reasonable prices.

Let us quote you on your next order.

KAYE & CARTER, 1043 Lumber Exchange Bldg., Minneapolis, Minn.

IDAHO AND NORTHERN
CEDAR POLES
WE ARE PRODUCERS

Yards in IDAHO, MICHIGAN, CANADA.
Toledo Yard for Urgent Orders. : : Get our Prices.
Ask for Leaflet No. Six

THE F. BISSELL COMPANY, TOLEDO, OHIO

We Produce Our **POLES** From Our Own Stumpage
IN
WASHINGTON IDAHO MONTANA

We Can Ship to You at Any Point
Let Us Quote You — We Have All Sizes — Any Amount

EASTERN SALES OFFICE
954 Security Bank Bldg.
MINNEAPOLIS, MINN.

TRI-STATE CEDAR COMPANY
COEUR-D'ALENE, IDAHO

They last longer in any soil—Stand twice the breaking strain of others.
CHESTNUT POLES
LARGE STOCKS
LOW PRICES
QUICK SHIPMENTS

Write to-day to PADUCAH POLE & TIMBER CO.,
Paducah, Kentucky

CEDAR POLES
AND CROSS ARMS

LOWEST PRICES—PROMPT SHIPMENTS

Wm. Mueller & Co., 920 Postal Telegraph Bldg.
Established 1862. - - - - CHICAGO

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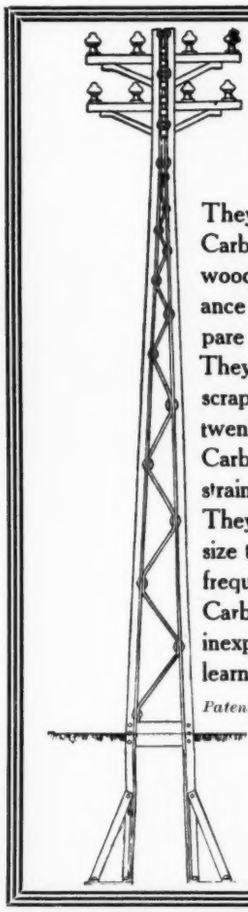

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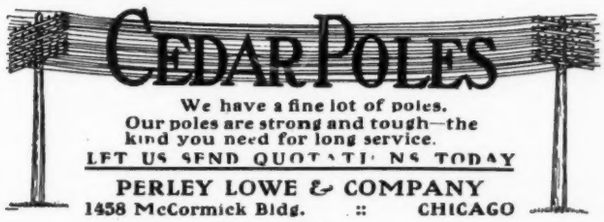

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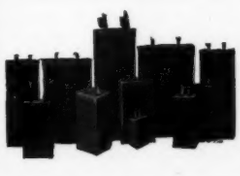

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TYPE, TELEPHONE
CONDENSERS

embody all the essentials of long life and good service. *Write for Literature*

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Cresco, Iowa

Legal Cases and Decisions

By A. H. McMillan

Use of Telephone to Deliver Telegraph Messages.

"We would like to know if the Western Union Telegraph Company can force us to allow it to deliver telegrams over the telephone to parties in the country.

"We have been getting 15 cents for each message delivered in the country, but the Western Union Company has not opened an office of its own. It has one of our telephones for which it pays rent, and it wants us to allow it to deliver all telegrams free.

"We offer to allow it to do this in the city, but, as we give free country service to subscribers, it wants free service for all of the messages."

You can adopt a rule or regulation that none of your telephones shall be used by the subscriber for any but personal business and that your telephones shall not be used to deliver messages for other parties than the subscriber. If this regulation is adopted and due notice given of it to all your subscribers, we think it would be held to be a reasonable regulation and one that could be enforced. The effect of it would be to deprive the Western Union Telegraph Company of the right to deliver telegrams over your telephone to your subscribers.

Franchises in America.

A subscriber in Bombay, India, asks regarding franchises in America as follows:

"Are there any sanctions to be obtained to install a public telephone system in America? Can I get a copy of the necessary agreements between the parties this would concern?"

The answer to this depends entirely upon where in America the questioner wishes to install a public telephone system. There are in America three sources from which franchises to carry on a telephone business in the public streets and highways, can be obtained. These sources are: 1. From the federal government; 2. From the different state governments; 3. From the municipalities in which the business is to be done. Franchises from the federal government are granted by the so-called Post Roads Act to such companies as are comprehended in its terms. By this legislation, which was an act of congress of July 24, 1866, it is provided:

"Any telegraph company now organized or which may hereafter be organized under the laws of any of the union, shall have the right to construct, maintain and operate lines of telegraph * * * through and over any portion of the public domain of the United States, over and along any of the military or post roads of the United States which have been or may be hereafter declared such by act of congress, and over, under or across the navigable streams or waters of the United States; provided, that such lines of telegraph shall be so constructed and maintained as not to obstruct the navigation of such streams or waters, or interfere with the ordinary travel on such military or post roads." 14 Stat. 221, U. S. Rev. Stat. Sec. 5263, Et. Seq. Congress in 1872 declared all the roads in the country which are now or may hereafter be in existence, post roads. 17 Stat. c. 335, p. 308; Sec. 3964; U. S. Rev. Stat.

Such an act as this would be a benefit only to a company which wished interstate business, that is, business originating in one state and terminating in another state. The acceptance of the Post Roads Act, according to its terms, amounts to a franchise from the federal government.

In many states there exist general laws which provide that any company organized to carry on a telephone business shall be entitled to use the roads, highways and lands of the state in such business. In such states the telephone company, upon its organization, becomes vested with the franchise from the state to use the roads, highways and lands mentioned. In some of these states an exception is made in the statutes as to cities, so that a franchise from the city is needed, but nothing except the state franchise is required for highways outside of the city. In a few states the consent of the authorities of county, town or city must be obtained before the company can use the streets, roads and alleys for its business.

From the situation as above outlined it will be seen that the necessity for a franchise, and the authorities from whom it must be obtained depend entirely upon the locality in which the company is to operate. A copy of the necessary agreements cannot be furnished without likewise knowing the locality.

Right of Competitor to Object to Bond Issue.

A rival public service corporation is not interested in the securities which the public service commission may authorize a competing company to issue, and therefore is not entitled to have the commission's order in the matter reviewed.

So held the supreme court of New York in a recent case, which was brought on the relation of the New York Edison Co. against the public service commission of the state of New York, to review an order of the public service commission, authorizing the Long Acre Electric Light & Power Co. to issue certain securities. The laws of 1907 (c. 429, Sec. 68) provided that no electric corporation should begin construction, or exercise any franchise previously granted, but not actually exercised, without having first obtained the approval of the proper public service commission. This law was amended so as to also provide that no electric corporation should exercise any franchise which had been suspended for more than a year, without having obtained the approval of the commission, and that the commission should have power to grant such permission, when, after due hearing, it determined that such construction, or exercises of franchise was necessary or convenient for the public service.

The court held that under this law, an electric company, which had continuously exercised its franchise and furnished electricity to the public prior to the amendment, and had filed its petition previous to the amendment, was not subject to the amendment and need not show that its service was necessary or convenient for the public service. The evidence in the case was held to justify the conclusion that the company, previous to the enactment of the amendment, had continuously operated its franchise for the use of the streets, even though it had carried its electricity over them for general sale to consumers, by means of leased poles and wires. People vs. Wilcox 136 N. Y. S., 1031.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems

Personal.

C. H. PATRICK, manager of the Florida Telephone Co., Tampa, Fla., has been transferred by his company to St. Petersburg.

PHILIP L. SPALDING, of Philadelphia, Pa., has been elected president of the New England Telephone & Telegraph Co., succeeding Jasper N. Keller.

E. L. GRAUEL has accepted the position of assistant manager of the commercial department of the Federal Telephone & Telegraph Co., Buffalo, N. Y.

FRANK GILCHRIST, who has been superintendent for the Fremont Home Telephone Co. for the past two years, has resigned with that company to accept a similar position with the Black River Telephone Co., with headquarters at Lorain, O.

FRED SPOERI, commercial manager of the Pacific Telephone & Telegraph Co. at Spokane, Wash., has been promoted to commercial manager with headquarters at Portland, where he succeeds John L. Yarnell, who goes to the San Francisco office.

B. L. MOORE, who has been secretary of the Federal Telephone & Telegraph Co. for a number of years, will succeed to the management of the Century Telephone Construction Co. He has been very successful in his work as manager of the long distance telephone and telegraph business, and in the de-

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Large Stocks—Prompt Shipments
Good Quality—Right Prices

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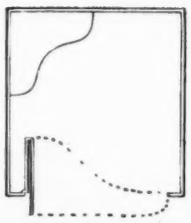

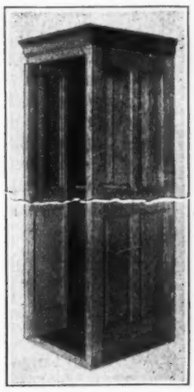

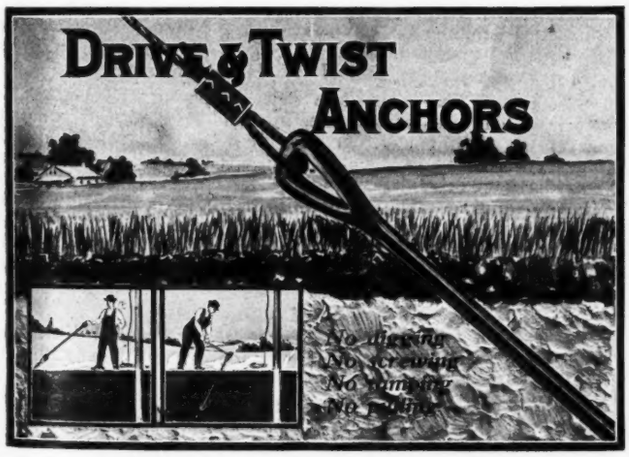

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THIS rod has a self-contained wire connector. Insert the ground wire and drive the key—that's all. Makes a *quicker* and *better* connection than the average sold red joint. Write for particulars.

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are enjoyed by all. The operator prefers them because they rest the nerves and are comfortable. You should prefer them because they are strongly built, cost no more and improve your service.

Should be used in every exchange.
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Here's a Proposition
We will ship twelve anchors subject to your approval. We guarantee them to hold more and cost you less installed than any other anchor made. State if you want them for light, medium or heavy guy work.
THE VOTE-BERGER CO.
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Please tell the Advertiser you saw his Announcement in TELEPHONY.

velopment of the list of subscribers in territorial exchanges of the Federal company. It is safe to say he will extend to the Century company the same enthusiastic efforts for commercial development which has been so noticeable in his work in the Federal company.

GAYLORD A. HOYT, who a short time ago was transferred to Syracuse, N. Y., by the New York Telephone Co. from Elmira, N. Y., to take up the work of special agent in charge of miscellaneous work, has been promoted to the position of district plant superintendent for the Syracuse, Oswego and Auburn districts, with headquarters in Syracuse.

J. L. W. ZIETLOW, president of the Dakota Central Telephone Co., of Aberdeen, S. D., accompanied by Mrs. Zeitlow, was in Chicago last week in the interest of his company. Mr. Zeitlow is making an extended business trip, going to St. Louis, Mo., Dallas, Tex., and Omaha, Neb., before returning to Aberdeen.

HOMER JOLLY has resigned his position as manager for the Cumberland Telephone & Telegraph Co., at Hickman, Ky. J. E. Hill, of Huntington, Tenn., will be his successor.

W. J. HISS, of Buffalo, division general manager of the western division of the New York Telephone Co., has been appointed general manager of the Bell Telephone Co. of Missouri, with headquarters at St. Louis. His connection with the telephone business dates from July, 1895, when, upon his graduation from Lehigh University, he entered the construction department of the Metropolitan Telephone & Telegraph Co. in the capacity of draftsman. During the next nine years his activities were confined to the construction department. In January, 1909, he was appointed division contract agent of the Long Island division of the New York & New Jersey Telephone Co., with headquarters at Brooklyn. Mr. Hiss remained in this capacity until April, 1910, when he was made division general manager of the western division of the New York Telephone Co., with headquarters at Buffalo.

W. W. KIDNEY, manager of the Century Telephone Construction Co., Buffalo, N. Y., has resigned his position. Mr. Kidney is one of the pioneers in the telephone manufacturing business. As early as 1890 he accepted a position with the Keystone Telephone Co., when B. G. Hubbell, together with J. G. Ihmsen, now manager of the Stromberg-Carlson Telephone Manufacturing Co., of Rochester, N. Y., and organized that company. He became superintendent of the Keystone company, and planned and constructed some of the first Independent switchboards manufactured. In 1899 Mr. Hubbell organized the Century Telephone Construction Co. and Mr. Kidney was immediately appointed superintendent of that company, which position he held until 1908, when he became its manager. The Century company suffers a distinct loss in the resignation of Mr. Kidney, and regrets exceedingly that he is leaving the organization. He will enter a manufacturing business where he will be associated with Gus Bauer. TELEPHONY and his friends in the field extend to Mr. Kidney their best wishes for success in his new field of endeavor.

Obituary.

WILLIAM H. ECKERT, well known in telegraph, telephone and railway circles, died in Stamford, Conn., at the age of 73. He was a native of Ohio and started his business career as a telegraph operator at Wooster, Ohio, in 1854. He had filled many important positions in this field and was associated with the Gray National Telautograph Co., New York City, at the time of his death.

GEORGE D. RUSHTON, who died recently, had been identified with the telephone exchange at Eaton Rapids, Mich., since its inception 30 years ago, having been assistant manager to his father, Dr. James Rushton, who was manager of the exchange until his death two years ago, when the management passed into the hands of his son. Mr. Rushton had resided in Eaton Rapids all his life and was one of the most prominent and influential business men in the town.

New Companies.

SUISUN CITY, CAL.—The Maine Prairie Telephone Co. has been organized with the following officers: C. Parker, president; H. G. Brown, secretary and the Bank of Dixon, treasurer.

KIRKSVILLE, KY.—Articles of incorporation have been filed by the Home Telephone Co. with $5,000 capital stock. The incorporators are J. I. Long, Marion Coy; W. K. Price and Rufus Blakeman.

ST. LOUIS, MO.—The Western Power & Light Co. has been incorporated with a capital stock of $2,000. The incorporators are: Fred R. Mott, Leo. C. Driatzko, of Webster Groves and C. E. Goltermann, of St. Louis, to own and control traction lines, electric light and power plants, telephone lines, etc.

LAHORE, VA.—The Pamunkey Mutual Telephone Co. has been chartered with $5,000 capital stock. The incorporators are: W. N. Green, president, Lahore; and Y. S. Johnson, Monrovia, secretary and treasurer and general manager.

Franchises.

CERRO GORDO, ILL.—The Cerro Gordo Mutual Telephone Co. has applied to the village board for a franchise to install a telephone system.

SPARKS, NEV.—The Sierra Telephone Co. has asked for a franchise for a telephone system in this city.

MADISON, S. D.—The Franklin Telephone Co. has been granted a franchise for rural connections here.

SHELTON, WASH.—The Harstine Telephone Co. has made application for a franchise in Mason county.

Construction.

SHREVEPORT, LA.—The Shreveport Home Telephone Co. will make improvements to its telephone system, including an automatic branch exchange for West Shreveport.

GRAND FORKS, N. D.—The Tri-State Telephone Co. plans improvements to its local system to cost approximately $15,000.

WATERTOWN, S. D.—The Dakota Central Telephone Co. will install a local automatic exchange in this city.

Elections.

ALEDO, ILL.—The People's Telephone Co. recently held its annual meeting and officers were elected as follows: President, Patrick O'Day; vice-president, V. J. Graham; secretary and treasurer, Emil A. Anderson.

ATWOOD, ILL.—The stockholders of the Atwood Mutual Telephone Co., elected the following directors at their annual meeting: R. D. Masterson, Charles B. Moore, H. C. Salzer and W. J. Flickinger.

CISSNA PARK, ILL.—At the annual meeting of the Iroquois County Telephone Co., Silas Brock was re-elected president; G. C. Steiner, secretary, to succeed H. R. Harvey, who resigned, and H. A. Koester was re-elected manager.

HILLSBORO, ILL.—The Mutual Telephone Co. held its annual meeting and elected directors as follows: Jacob Travlor, of Coffeen; John Minikin, of Pitman township; Dan Pope of Raymond township; and Rufus Curthis, of Sorento.

ATCHISON, KANS.—The directors of the Atchison County Mutual Telephone Co. have elected the following officers: John Robenstine, president; J. F. Logan, vice-president; D. H. Kemerling, secretary, and H. W. Hurst, treasurer.

NAZARETH, PA.—The Slate Belt Telephone & Telegraph Co. recently held its annual meeting and elected the following directors: William V. Knauss, Bethlehem; Mark T. Swartz, Nazareth; Dr. J. C. Keller, Wind Gap; E. A. Speer, Pen Argyl; E. G. Markley, Bangor; Dr. E. S. Rosenberry, Stone Church; and A. G. Connolly, Nazareth. The directors elected A. G. Connolly, president and general manager; Dr. J. C. Keller, vice-president; Edward S. Loux, of Nazareth, secretary and treasurer; and H. I. Shafer, of Nazareth, assistant treasurer.

Underground.

MOUNT PLEASANT, IOWA.—The Mount Pleasant Telephone Co. proposes to place its wires underground, preparatory to erecting a new building.

WILKES-BARRE, PA.—The Bell Telephone Co. of Pennsylvania has been granted permission to place its wires underground in several of the city's principal streets.

Miscellaneous.

SCOTTSBORO, ALA.—C. F. Town has purchased the Independent plant at Scottsboro, Ala.

FRESNO, CAL.—The school board is considering the feasibility of installing a private telephone system.

PONTIAC, ILL.—A certificate of dissolution has been filed by the Strawn Farmers' Telephone Co.

FORT RITNER, IND.—Notice has been filed of the dissolution of the Tricounty Fort Ritner Telephone Co.

MAYFIELD, KY.—The Jimtown Telephone Co. has been bought by J. M. Gossett.

MOORHEAD, MINN.—The city council has passed an ordinance granting the Tri-State Telegraph & Telephone Co. the right to string wires and cables along certain streets for exclusive long distance service.

RUSHFORD, N. Y.—An agreement has been executed by the Rushford Telephone Co. and the Centerville Telephone Co. providing for an interchange of business.